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ECONOMIC IMPACT  
OF RECREATION  
IN THE COASTAL ZONE

(Interim Report - First Year)

SEPTEMBER, 1975

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## ABSTRACT

Recreation-tourism is an important element in today's society. Excursions and vacations --one day, a week-end, a week or longer-- are expected and common events to many people. To accommodate the demand, many recreational areas have been and are being developed by public and private interests.

The coastal counties, as other counties in Wisconsin, are being subjected to recreation development and growth. The Economic Impact of Recreation in the Coastal Zone study reviews (1) the types of recreation facilities located in the coastal area, (2) estimates and projects demands for selected recreation-tourism activities, (3) develops information on the economic importance of recreation-tourism and, (4) develops information relating to the public costs associated with recreation-tourism.

The first year report analyzes existing information on demand and supply of coastal recreation and explores new approaches to developing information for reviewing the importance of recreation development in the coastal counties. It also explores general policy issues at the state level relating to public and private recreation development.

The second year study will become involved with developing specific information on the impact of recreation-tourism to the coastal zone counties and the coastal townships. Recommendations will be made on state policy objectives relating to (1) retaining a highly productive recreation-tourism industry, (2) developing a cooperative effort in public and private programs to insure orderly and needed development, and (3) encouraging sound resource use and management programs in public and private recreational development.

## SUMMARY

Wisconsin's recreation-tourism industry has grown dramatically in the last decade. In the early 1960's, the industry was estimated to be a billion dollar industry. In the 1970's the industry grew to over three billion dollars in annual sales. Many recreational areas have been and are being developed by public and private interests to accommodate the growth in demand.

The coastal counties, as other counties in Wisconsin, are being subjected to recreation development and growth. The Economic Impact of Recreation in the Coastal Zone study reviews, (1) the types of recreation facilities located in the coastal area, (2) estimates and projects demand for selected recreation activities, and (3) develops information on the importance of recreation-tourism to the economy of coastal counties and communities.

State Policy and Program Objectives

Public policy, in its simplest terms, can be defined as the approach or position taken by government representing public interest on specific issues. State policy relating to recreation in the Coastal Zone is embodied in many levels of public authority through broad programs administered by public agencies. Some programs are regulatory, such as the shoreline flood plain zoning and the subdivision platting laws. Others are concerned with public facilities planning and development that are embodied in transportation planning and development and wildlife and resource planning and development. Some policy and programs directly affect the recreation-tourism sector through tourism promotion and park

development, while others have an indirect effect through building codes and other standards for development. Finally, there are technical and educational assistance programs administered by various state departments and the University of Wisconsin-Extension which facilitate private investment and improve the management of existing recreational businesses. There is, however, only limited effort to review and develop programs aimed at coordinating the overall objectives of state policy.

Wisconsin does not currently have a separate recreation policy for the Coastal Zone. The question as to whether or not a special state policy is needed for coastal recreation will be investigated in this study. In most cases, existing state policy and programs may be used to take care of the recreational needs in the Coastal Zone. However, redirection and coordination may be necessary in some areas. For example, efforts are being made to improve and expand the Great Lakes fisheries. These improvements should lead to greater recreational use of the Great Lakes. Efforts must be directed, alongside of this program, to ensure safety and needed facilities for increasing numbers of fishermen and their families. The need for harbors of refuge, marinas, lodging, transportation and a variety of other services has to be considered alongside of efforts aimed at expanding the fisheries. This indicates the need for other public authority to become involved, as well as creating areas for private investment, state-policy designed to cope with this type of situation does not exist and is needed.

Wisconsin's recreation-tourism industry, including the Coastal Zone, even though highly productive is faced with existing and future problems. These problems are associated with (1) transporting large numbers of people

during peak use periods, (2) accommodating and providing services to a large number of people, (3) increasing pressures on the resources because of overcrowding and overuse during peak periods, (4) the need to preserve and protect high quality natural shoreline areas from the effects of development, (5) economic problems due to increased costs, high unemployment and a changing user market, and (6) problems due to energy availability and cost.

The problems facing the industry cannot be resolved simply. There is a need for further cooperative effort between the private sector and public offices at the federal, state and regional planning levels to identify responsibilities and programs, as well as the system necessary to implement programs. The state must assume leadership in promoting needed recreation development under a sound resource use and management program.

The following three-state policy objectives are being explored under the coastal program for recreation-tourism:

- 1) To encourage the development and promotion of needed public and private recreation facilities.
- 2) To promote sound resource use and management programs in public and private recreational development.
- 3) To develop public assistance and planning programs that lead to cooperative effort by public and private interests in carrying out the orderly development and distribution of needed recreational services and facilities.

There are many questions that accompany these policy and program objectives. For example, what types of recreation facilities are needed? What are the priorities for development? Who should build the facilities? What support facilities are needed and who should pay for them? How can public and private funds be used more effectively to carry out programs and policy objectives? What is the system needed to oversee the overall

recreation development program? How can recreation development and environmental protection responsibilities be coordinated? What public programs exist today and what funds are available to carry out a cooperative public-private program?

The policy objectives and questions will be considered in the recreation impact study. Through information gathered under three phases of the study, through field contact at meetings with the public, public officials, regional planning commissions and with private interest groups, it is anticipated that sound state policy recommendations can be made. To provide information useful in developing answers to these and other questions, the recreation impact study is divided into two study areas for the first year report: (1) inventory of existing facilities and the demands for recreation, and (2) the economic impact of recreation. The second year study will include sections dealing with information relating to the public costs associated with recreation, as well as the costs and benefits associated with large second home developments in the Coastal Zone. Each study area is being developed separately and will be drawn together in the final report to provide an overview of the role that the state will need to take through policies and programs to ensure environmentally sound and balanced recreational development.

Each section of the recreation impact study is summarized below with regard to objectives, first year program and second year program.

#### SECTION ONE: DEMAND AND SUPPLY OF RECREATION IN THE COASTAL COUNTIES

Objectives: This section of the study seeks to assess the pressures to develop recreational facilities in the coastal townships and to identify the extent to which coastal recreational uses are displaceable. The major

objectives of this section are: (1) to determine the specific types of facilities which need to be encouraged in the coastal townships, (2) to determine which facilities should be given high priority for coastal sites, and (3) to identify the support facilities that need to be encouraged to accommodate the recreationists. The two parts of this section, demand and supply, are discussed separately below.

A. DEMAND

First Year Program: The first year effort was basically one of identifying the major recreation activities in the coastal zone counties and collecting and analyzing existing information on the demand for these activities. Using information generated over the last 4-5 years, the level and expected growth of demand was determined for six recreation activities for each of the fifteen coastal counties. The activities selected for review and analysis are: swimming, boating, fishing, sightseeing, camping and hiking. These activities are the most popular (in terms of percent of families participating) recreational interests among Wisconsin residents, as well as travelers to the Great Lakes region.

The survey and analysis of existing data pointed to several gaps in information which are essential for a meaningful study of recreational demand in the Coastal Zone. For example, existing data are mostly county level information which do not specify the location preferences of recreationists within those counties. This information is essential if one is to determine the access and facility needs in the communities on the Great Lakes shoreline.

Thus, as a result of the first year effort, the overall level of demand for various recreation activities was determined and projected for each county. The degree of dependency of various activities on the coast-

line and on the Great Lakes could not be identified on the basis of existing information during the first year study effort.

Second Year Program: On the basis of the information gaps identified during the first year study effort, boating and fishing are selected for further investigation to determine the degree of their dependency on the Great Lakes. Surveys are being planned to yield information on the demand for Great Lakes boating and fishing. The objectives of the boater/fisherman surveys are:

- 1) To determine the major characteristics and preferences of Great Lakes boaters and fishermen to compare inland lake users with Great Lakes users.
- 2) To analyze the preferences so as to determine the extent to which Great Lakes boating and fishing are unique recreation experiences and, therefore, nondisplaceable coastal uses.
- 3) To project future use of the Great Lakes by boaters and fishermen.
- 4) To determine the adequacy of boating and fishing facilities in the coastal communities.
- 5) To determine the expenditures of boaters and fishermen in coastal communities to arrive at the economic benefits from these major demand groups.

The surveys currently being conducted (or planned) include a survey of private marina owners and users, survey of boaters using public launch sites, survey of boating and yacht club members.

#### B. SUPPLY

First Year Program: The first year effort was devoted to inventorying of public boating, fishing, swimming and camping facilities. Support facilities such as restaurants and overnight lodging establishments were also identified. This information was mapped for each county. The coastal orientation of public facilities was highlighted by comparing the

access points on the coast with those located elsewhere in each county. The analysis tried to identify the counties where facilities are highly oriented to the coast. It also shows the areas which serve specific recreational interests and those which have a broader appeal.

Second Year Program: The second year effort will be devoted to developing information on capacities of specific public and private recreation facilities located on the coast. This information will be analyzed in conjunction with the findings of the demand section.

## SECTION TWO: ECONOMIC BENEFITS OF RECREATION IN THE COASTAL COUNTIES

Objectives: The major objective of the study is to develop sound sales and economic information on the impact of recreation and tourism in the Coastal Zone area. Information being used in the study relate to gross business sales from the Department of Revenue, auto traffic counts from the Department of Transportation, employment information from the Department of Industry, Labor and Human Relations, and public license and use figures from the Department of Natural Resources. The information will be reviewed as monthly totals by county. The primary concept that will be used in estimating recreation-tourism activity in each county will be to analyze and correlate monthly fluctuations in sales with employment, park use, license sales and auto traffic. Using this approach, it is anticipated that the study will generate information in the following areas:

- 1) Information on the dollar importance of recreation-tourism to the coastal counties and coastal area of each county.
- 2) Information on the types of businesses that benefit from the recreationists.

- 3) Information on nonresident (out-of-state and Wisconsin resident from outside the county) and resident (from local county) activity and expenditures for recreation and tourism.
- 4) Information on the system and data needed to establish an on-going monitoring program that will provide current information on the industry.

First Year Program: The first year study was devoted primarily to collecting and analyzing information. A general survey was made on the use of gross business sales as a tool in estimating recreation-tourism activity. The intent was to explore business sales patterns in each region of the coastal zone (Southeast, Bay Lakes and Northwest) and the relationship of sales activity by different sales areas including food, lodging, eating and drinking, and amusement sales to total business sales. This process was applied to Door County to obtain a feel for the use of the data at the county level. The first year report covers the preliminary look at the use of sales data in estimating the sales impact that occurs because of increased or fluctuating seasonal activity.

The general findings in the first year are:

- 1) Monthly business sales do fluctuate in the regions and counties and are anticipated to reflect recreation-tourism activity.
- 2) Fluctuations of monthly business sales are reflected in recreation-sensitive businesses (lodging, eating and drinking and amusement sales) and in other retail and service sales areas being analyzed in the study.
- 3) Changes in business volume from the low sales month to the high sales month provides an opportunity for measuring the impact of seasonal activity.
- 4) The availability of sales data and system necessary to set up an on-going monitoring program of recreation-sensitive business sales by county by month is feasible.

Second Year Program: The second year study objective is to develop specific information on the Coastal Zone area that can be used in evaluating the importance and effect of recreation-tourism in the Coastal Zone

area. Future needs and problems will be explored and recommendations made on the course the state should pursue through policies and programs in assisting the existing and future recreation-tourism industry.

The second year program will generate specific sales, employment, traffic and other information on the fifteen counties in the Coastal Zone and on the coastal townships. The data (traffic data, employment data and public use data) will be analyzed to estimate the full impact of recreation-tourism in the study area. Emphasis will be placed on interpreting the information for use in developing state policy recommendations.

The following general areas will be developed in the second year:

- 1) Detailed sales information on recreation-tourism sales for each county and the coastal townships.
- 2) Auto, transportation and employment information related to recreation-tourism activity.
- 3) Information on the mix of businesses involved in recreation-tourism activity.
- 4) Information on the impact of public and private recreation on the local business community.
- 5) Estimates on the number of recreationists involved in the recreation-tourism sales impact.

### SECTION THREE: PUBLIC COSTS OF RECREATION

First Year Program: The goal of the first year effort was to review the literature on the public costs of recreation. This goal was set with the intent of identifying the areas to be investigated through a field survey of the public costs of recreation in specific coastal communities during the second year. Thus, the literature review is to serve as the basis for many of the questions to be asked in the field survey.

The review of the literature indicates that many factors enter into the public costs associated with recreation-tourism. Yet, it also reflects

that few studies have specifically looked at all of these questions as a group. This material will be summarized along with the survey information developed during the second year.

Second Year Program: A survey of public costs will be conducted in all coastal communities to identify the public expenditures associated with recreation-tourism in general and Great Lakes boating/fishing in particular. Also, finally, during the second year of the study, major coastal recreational home subdivisions and condominium developments will be analyzed in a cost-benefit framework to identify trends, economic benefits and public costs associated with this type of land use.

#### SECTION FOUR: LARGE SECOND-HOME DEVELOPMENTS IN THE COASTAL ZONE

During the second year of the study, major coastal second-home subdivisions and condominium developments will be analyzed to identify trends, economic benefits and public costs associated with this type of land use.

SECTION ONE

DEMAND AND SUPPLY OF RECREATION  
IN COASTAL COUNTIES

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## INTRODUCTION

This section seeks to assess pressures to develop recreation facilities in the coastal zone and to determine the extent to which coastal recreational uses are displaceable. Because of the limitations of available data, the assessment in many cases is rough and cannot be considered conclusive.

Pressures. The questions being studied should first be clarified before summarizing conclusions. First, how significant are the pressures to develop recreation facilities in the coastal zone and, specifically, where do these pressures exist? A number of supply-demand issues drop out of these twin questions. Are there counties in which a range of different recreation facilities serve diversified recreational interests (and, therefore, a broad base of demand)? Are there counties in which coastal facilities serve only small and highly specific demand groups? Does this situation translate into an upper limit on the demand for coastal facilities which effectively means there will never be significant problem-creating demand pressures in certain locations of the coastal zone? Also, given a significantly expanding demand group, are there constraints such as lack of available sites, high development costs and so on which effectively limit the capability of supply to respond to demand?

The approach taken in attempting to answer these questions was to project growth rates for six outdoor recreation activities, translate these growth rates into resident and nonresident participation growth in each county, and then interpret the coastal orientation of participation by noting the coastal orientation of public recreation facilities for four of the activities--boating, fishing, swimming and camping. Swimming

and camping facilities were checked for correspondence to the locational patterns of their private counterparts in the counties. Also, the location of two other categories of private facilities, restaurants and hotels-motels-resorts, were identified in each of the coastal counties.

Among the six activities surveyed, boating, hiking and fishing are the fastest growing recreational interests among regional households. In the coastal counties, boating participation on an average weekend day is projected to more than double between 1970 and 1980. Projections for hiking and fishing indicate that demand will increase by 102% and 82%, respectively, over the same period.

The coastal orientation for all recreational facilities was found to be clear cut for only three counties. Among all activities for which facilities were inventoried, Door county had high coastal orientation, while Marinette and Iron counties had consistently low coastal orientations, which only confirms strong expectations. But in other counties which do not have strong coastal orientations for all facilities inventoried and have significant inland water resources, the coastal orientation of specific kinds of facilities, such as boating or fishing facilities, is high. The implication is that coastal facilities in some counties serve a specific kind of demand emphasizing a coastal destination which is not tied to inland recreation, such as a charter fishing trip or a weekend on a personal boat berthed in one of the several coastal harbors.

Hence, implications about the type, size and growth potential of demand groups being served by coastal facilities are only suggested by the analysis. Second year efforts will be geared to verifying and quantifying these implications especially with respect to coastal boating and fishing. Surveys will be made to estimate the characteristics and size

of the demand groups served by coastal boating and fishing facilities. In this way, the coastal element of county projections can be established and coastal facilities development pressures can be assessed. On the supply side, more up-to-date data from a recreation facilities survey being initiated jointly by the Department of Natural Resources and the Recreation Resources Center, UW-Extension, will be utilized to include both public and private facilities and their capacities in the coastal counties. This more inclusive inventory will provide a much more accurate picture of the coastal orientation of supply and demand. Also, the role of large coastal recreational home subdivisions in the demand-supply picture will be investigated with special emphasis on the net benefits associated with these developments.

Displaceability. Displaceability is a more complex question to deal with analytically. It tries to determine what would be lost if a recreation use was removed from the coastal zone as a result of competition with nonrecreational uses. Examples of this kind of problem would be competition for space in the same harbor site among recreational and commercial boating, or competition for the same site between a park offering public access to the water and a commercial enterprise offering none. Criteria for evaluating displaceability in specific situations include: a) adverse economic impact of displacement both for the overall community and for other proximate uses with particularly close complementary relationships; b) the lack of alternative coastal sites; and c) the lack of alternative noncoastal sites for location of comparable facilities which would serve the same needs of demand groups as those served by the coastal facility.

In this first year study, a number of different possible situations in which the displaceability issue may arise became apparent. The

two most extreme kinds of situations will be described. First is the county where a diverse range of recreation experiences is available in coastal townships, suggesting a high degree of complementary relationship between public and private, water-based and land-based recreation facilities. In this case, the displaceability of a particular proposed facility from the coast could be assessed from the adverse economic impact of this facility's displacement alone. Because of the range of different facilities available for different recreational demand groups, the displacement of one facility would probably not foreclose important alternatives. Another situation occurs, though, in the county where a particular coastal recreation facility would serve a small group of recreationists specifically preferring the coastal experience. Among the criteria, adverse economic impact of displacement would be important, but the small number of alternative coastal sites and the lack of alternative noncoastal sites would also be important considerations in assessing the displaceability of that facility.

The second year effort, then, will focus on identifying specific demand groups within the broad recreation activity categories, establishing their willingness to substitute an inland experience for a coastal experience, and estimating their size and future growth. On the supply side, the effort will be focused upon identifying the coastal facilities serving these specific demand groups. The intent of this effort will be to estimate the range of alternative coastal facilities able to serve the demand groups given the displacement of a specific coastal facility. Boating and fishing facilities will be emphasized.

RECREATIONAL ACTIVITY INTERESTS OF REGIONAL HOUSEHOLDS  
AND TRAVELERS

Wisconsin's coastal zone offers a variety of recreational opportunities, in addition to the scenic value of the coastal area which is a resource in itself. The demand for the coastal recreational resources can be viewed as coming from resident and nonresident groups. The resident demand is the participation of the families in the coastal communities and counties in recreation activities using the coastal facilities. The nonresident demand derives from the noncoastal and out-of-state visitors who travel to a coastal destination for recreational and vacation purposes.

Most studies dealing with recreation participation have focused on the nonresident aspects of the pressures and economic benefits accruing to communities from recreation activity participation. In most cases, this method is sufficient for providing an adequate picture of the recreational costs and benefits for a community. Most of the parks and intensively studied recreation areas are away from population centers, with relatively small resident populations and, therefore, relatively small pressures on resources from the resident participators in recreation activities.

The coastal zone of Wisconsin, however, houses 43 percent of the state's population. Especially in Brown county and the southern Lake Michigan counties, resident recreation demand becomes equally, if not more, important in assessing the pressures on the coastal recreational land and facilities. It is, therefore, necessary to look at the recreation activity interests of resident (county) households, as well as those of travelers.

Unfortunately, the county level activity participation data generated by the Department of Natural Resources identifies only two components

of demand--resident (Wisconsin) and nonresident (out-of-state). A meaningful analysis and projection of demand requires separating the county resident from other Wisconsinites. Specific activity surveys planned for the summer of 1975 will break down demand into its three major components to provide further thought into the three components of demand for coastal facilities.

#### Recreation Activity Interests of Regional Households

The Recreation Demand Survey and Forecasts<sup>1/</sup> provides information on overall participation rates (percent of families participating anywhere, anytime, during a 12-month period) and participation rates of Upper Great Lakes travelers. The findings of this study are presented on Table 1 for eight outdoor recreation activities. The participation rates refer to the percent of households participating in a given activity.

A comparison of the overall participation rates with the participation rates of families on a summer trip to the Upper Great Lakes Region shows differences in the recreation activity interests of the two groups. Picnicking and bicycling are two recreation activities which are usually done in the vicinity of the family residence. About 72 percent of families went picnicking and 40 percent went bicycling during the year. But, only 12 percent went picnicking and 5 percent went bicycling while vacationing in the Upper Great Lakes region.

Sightseeing and fishing are found to be the most popular activities among the families traveling in the UGL region, followed by swimming, boating, hiking and camping. The abundance and variety of scenic resources in the area explains the interest in sightseeing. The importance of water is

<sup>1/</sup> Somersan, A., R. Cooper, N. Enosh and S. McKinney, Recreation Demand Survey and Forecasts, Upper Great Lakes Regional Recreation Planning Study, Part 2, Recreation Resources Center, University of Wisconsin-Extension, 1974.

underscored by the popularity of fishing, swimming and boating among the families visiting the UGL region during the summer months.

Table 1. Outdoor Recreation Activity Participation Rates of Regional Households and Travelers to the Upper Great Lakes Region

Activity	Overall Participation Rate (Pct. of Regional Families, 1972)	Participation Rate While on a Summer Trip to UGL Region (Pct. of UGL travelers, 1972)	Projected Annual Increase in Participation Rates. (Pct. per year between 1972-1980)
Swimming	58.1	41.3	- 0.3
Sightseeing	62.0	46.7	2.1
Bicycling	40.0	4.9	5.3
Fishing	48.8	46.3	3.5
Picnicking	71.6	12.3	2.5
Boating	38.0	32.6	5.5
Camping	27.0	21.4	2.8
Hiking	33.6	24.8	4.8

Source: A. Somersan, et. al., Recreation Demand Survey and Forecasts, UGL Regional Recreation Planning Study, Part 2, Recreation Resources Center, Univ. of Wis.-Extension, 1974, pp. 27 & 44.

#### Projected Growth in Recreation Activity Participation

Projected participation rates for these eight outdoor recreation activities for 1980 are also provided in the Recreation Demand Survey and Forecasts.

The projections are based on multiple regression prediction equations, using socioeconomic, supply and youth-related factors as independent variables.<sup>1/</sup>

The annual increase in participation rates computed on the basis of the projections made available in this study are presented on Table 1, column 3.

<sup>1/</sup> Ibid., p. 44 and pp. 77-109.

Outdoor swimming is the only recreation activity for which a slight reduction in the participation rate is projected between 1972 and 1980. The increasing indoor swimming opportunities, unreliable weather, relatively cold water temperatures, increased awareness of water quality, as well as competition from increasing availability of other recreational activity opportunities can be cited as possible reasons for the small projected decrease in the swimming participation rate.

Among the remaining seven outdoor recreation activities, boating is projected to show the greatest annual increase in participation (5.5% per year), followed by bicycling, hiking and fishing (5.3%, 4.8% and 3.5% per year, respectively).

#### RECREATION DEMAND IN THE COASTAL COUNTIES

Demand Data: The data base for recreation activity participation figures is the joint survey of the Department of Transportation and the Department of Natural Resources of resident and nonresident recreation activity participation occasions by county in 1970. This information is used to obtain the number of occasions by residents and nonresidents on an average summer weekend day in 1970 for each activity by coastal county.

The average number of weekend occasions is not a meaningful figure in itself. However, combined with projected increases in population, travel and activity participation rates, it allows us to determine percentage rates of growth of activity participation between 1970 and 1980 and provides some insight into the relative magnitude of demand by activity over the 15 counties in the coastal zone. The relative rates of growth in demand for each activity were computed independently, from other sources of information, as discussed below. This analysis did not require the use of the 1970 average weekend day participation occasions. This information,

however, was essential to give the user a feel for the absolute levels of demand under consideration in each county. Pressures created by a 100 percent increase in boating occasions necessitate different responses, depending on whether one is starting from a base of 1,500 occasions or 15,000 occasions per weekend day.

From the viewpoint of a coastal survey, the most important shortcomings of the base-year demand data utilized in this section lie in its failure to distinguish between different types of boating and fishing, and in its failure to identify the local component of resident participation. Thus, boating and fishing (as well as other activities) are lumped together for each county regardless of whether the participation occurred in inland waters or on the Great Lakes. This is an especially serious shortcoming in the case of fishing and boating. The growth rate of the demand for boating on the Great Lakes is probably much faster than the growth rate of demand for boating on inland waters. The same is probably true of fishing on the Great Lakes versus fishing on inland waters. Furthermore, by lumping the demand from coastal county residents with the rest of Wisconsin under the "resident demand" category, the relative importance of local demand and pressures on facilities cannot be ascertained on the basis of this data.

#### Demand Projections<sup>1/</sup>

Most changes in recreation activity participation over time in a given location can be explained by changes in one or more of the following four factors:

1. Population: Increasing population in coastal counties and in the primary demand zone (the other states and remaining counties of Wisconsin from which each coastal county attracts recreationists) will lead to increased number of participants in various

<sup>1/</sup> See Appendix A for a detailed discussion of projection methodology.

recreation activities. Increased population will increase the pressure on existing coastal facilities, even in the absence of increases in the propensity to travel or the propensity to participate in recreation activities.

2. Travel: Changing socioeconomic and demographic factors, as well as the changing nature of the family vacation from a luxury to more or less an annual necessity, increases the number of participators using the recreational facilities of a given area.
3. Popularity of Various Recreation Activities: Changes in income and education, combined with increased promotion and the demonstration effect, lead to varying degrees of increases in the participation rate for different recreation activities.
4. Supply: The establishment of a new recreational facility, be it a national lakeshore or a high-quality marina, attracts increased numbers of recreationists to that area.

The projection for activity participation in the 15 coastal counties in 1980 are based on three of these factors. Population changes, increases in vacation and recreational travel, and changes in activity participation rates are used to compute the changes in resident, nonresident and total participation in each activity for each county. Supply induced changes in demand are not built into the projection methodology because of data limitations.

Six recreation activities are discussed below in detail. These are boating, fishing, swimming, camping, hiking and sightseeing. The first three activities were selected as the primary recreational activities

for the coastal area because of their reliance on water. Sightseeing is also considered a primary activity due to the scenic features of the Great Lakes shoreline. Camping and hiking are selected as the two land-based activities which are complementary to the four primary recreation activities. Picnicking and bicycling are not discussed in detail in this report.

### BOATING

Boating is one of the fastest growing recreation activities among midwestern families. The 1972 Outdoor Recreation Demand Survey found 38 percent of the region's families participating in some form of boating during the year. Projections for 1980 show the participation rate at 55 percent of families which translates into a 5.5 percent growth per year.

The increased popularity of boating can be explained with reference to many factors. Among the more important ones are the increasing levels of regional incomes, decreasing maintenance costs due to the use of fiberglass in body construction and improvements in boat design. Smaller, lighter weight engines of motor boats and the improvements in the design of all boats have reduced maintenance costs and made it easier to transport, launch and use boats. Among the different kinds of boating, the increase in the popularity of canoeing and sailing could also be tied to the overall increase in interest toward most nonenergy-using recreation activities.

#### Boat Licenses

Boat registration figures are often used as an indicator of interest in boating. Although boat registration figures do indicate the interest in boating, they should not be used as indicators of boating participation. The number of boats registered in a county does not necessarily correspond to the participation rate or the level of participation in boating in that county.

The Licensing Section of the Wisconsin Department of Natural Resources classifies boat licenses by two categories--originals, which refer to individually owned boats (2 or less); and fleets, which refer to licenses issued for three or more boats, mostly to recreational business operators.

Table 2 shows the number of boat licenses issued to residents of the 15 coastal counties during the 1971-73 period. A comparison of the breakdown between originals and fleet licenses among the coastal counties shows the relative availability of boats for rent and/or the existence of resorts and other establishments which offer boating opportunities as a part of the overall recreation package.

Table 2. Number of Boat Licenses, by County (1971-73)

County	Originals*	Percent of Total	Fleets**	Percent of Total	Total
Ashland	5,179	91	498	9	5,677
Bayfield	4,572	64	2,585	36	7,157
Brown	28,946	99	376	1	29,322
Door	6,025	79	1,574	21	7,599
Douglas	12,192	80	1,298	10	13,490
Iron	2,493	55	2,006	45	4,499
Kenosha	15,743	92	1,382	8	17,125
Kewaunee	1,993	97	71	3	2,064
Manitowoc	13,176	99	170	1	13,346
Marinette	8,235	88	1,161	12	9,396
Milwaukee	119,188	98	2,021	2	121,209
Oconto	5,543	83	1,097	17	6,640
Ozaukee	8,320	98	160	2	8,480
Racine	21,613	96	991	4	22,604
Sheboygan	16,135	97	479	3	16,614
Total	269,353	94	15,869	6	285,222

\* Original - Licenses for two or less boats.

\*\* Fleet - Licenses for three or more boats

Source: Wisconsin Department of Natural Resources, Licensing Section,  
Boat and Snowmobile Registrations.

Among the coastal counties, only three (Bayfield, Iron and Door) have over 20 percent of their total boat licenses issued to fleets. Ashland, Douglas, Kenosha and Marinette counties have between 8-12 percent of their total boat licenses issued to fleets. In the remaining seven coastal counties, fleet registrations account for very small percentages of the total number of boats registered.

For the coastal zone as a whole, fleets account for 6 percent of the total boat licenses issued during the 1971-73 period. In the remaining 57 Wisconsin counties, the share of fleets in total boat licenses is 14 percent. The larger percentage of fleet licenses issued in noncoastal areas of Wisconsin can be interpreted as reflecting the predominance of the small resorts offering boat rentals or privileges in the noncoastal recreation areas of the state. Also, one could cite the higher initial and operating costs of boats for Great Lakes use as another explanation for the relatively lower percentage of fleet licenses issued in the coastal region.

Table 3 shows the number of boats (originals) per 1,000 persons in the coastal counties. In the coastal zone as a whole, 141 boats were registered per 1,000 coastal residents during the 1971-73 period. The densely populated counties show relatively smaller numbers of boats per 1,000 persons, while the low population counties have larger numbers of boats per 1,000 residents. The suitability of the coastline, extent of second-home development, the availability of boating facilities and the effects of crowding are among the major factors which need to be investigated as determinants of the differences in per capita boat ownership among the coastal counties.

Table 3. Resident Original\* Boat Licenses per 1,000 Persons (1971-1973)

County	Original Boat Licenses per 1,000 Population	County	Original Boat Licenses per 1,000 Population
Ashland	309	Manitowoc	160
Bayfield	391	Marinette	230
Brown	183	Milwaukee	113
Door	300	Oconto	217
Douglas	273	Ozaukee	153
Iron	382	Racine	127
Kenosha	134	Sheboygan	167
Kewaunee	105		
		Total, Coastal Zone	141

Source: Wisconsin Dept. of Natural Resources, Licensing Section, Boat and Snowmobile Registrations.

\* Original - Licenses for two or less boats.

#### Boating Participation Data

Existing data on the demand for boating do not distinguish between boating on the Great Lakes and boating on inland waters. Considering the difference in the boating experience on these two types of water, as well as the differences in the type and cost of equipment which is required for these two types of boating, the existing data are, indeed, grossly inadequate for a meaningful overview of coastal boating participation. Surveys are planned for the 1975 summer season to generate participation and spending data for Great Lakes boaters. Information from these surveys, which will be summarized in future reports on the Impact of Recreation in the Coastal Zone, as a part of Wisconsin's Coastal Zone Management Program, will allow pinpointing the level and distribution of demand for Great Lakes boating.

Table 4 summarizes the currently available information on boating participation for the 15 coastal counties and presents the projections for 1980. The boating participation figures reflect the number of boating occasions on an average summer weekend day. Total boating participation

Table 4. Boating Participation in Coastal Counties (Average Summer Weekend Day)

County	1970			1980			Percent change in total 1970-1980
	Resident	Nonresident	Total	Resident	Nonresident	Total	
Ashland	744	1,706	2,450	1,597	3,720	5,317	117.0
Bayfield	4,251	3,764	8,015	9,123	8,261	17,384	116.9
Brown	1,084	659	1,743	2,326	1,429	3,755	115.4
Door	3,678	3,064	6,742	7,893	6,659	14,552	115.8
Douglas	3,572	2,731	6,303	7,666	5,984	13,650	116.6
Iron	1,396	4,035	5,431	2,996	8,755	11,751	116.4
Kenosha	1,157	7,519	8,676	2,483	16,320	18,803	116.7
Kewaunee	585	294	879	1,255	638	1,893	115.4
Manitowoc	1,611	67	1,678	3,457	147	3,604	114.8
Marinette	3,605	1,271	4,876	7,736	2,808	10,544	116.2
Milwaukee	1,454	285	1,739	3,120	621	3,741	115.1
Oconto	4,994	670	5,664	10,717	1,471	12,188	115.2
Ozaukee	155	65	220	333	128	461	109.5
Racine	1,543	1,122	2,665	3,311	2,442	5,753	115.9
Sheboygan	608	677	1,285	1,305	1,469	2,774	115.9

is composed of resident and nonresident participation. The nonresident participation covers visitors from other states and resident participation refers to boating by Wisconsin residents.

Percent change in total participation between 1970-80 is shown on the last column of table 4. For the coastal zone as a whole, the total number of boating occasions on an average weekend day are expected to increase by about 115 percent between 1970 and 1980. The slight variation among the coastal counties in the percent change of total boating occasions between 1970 and 1980 is due to the composition of out-of-state demand and the differing population growth rates in various primary demand areas.\*

Table 5 shows nonresident boating occasions as a percent of total participation in 1970. The information provides a feel for the extent to which out-of-state demand adds to existing pressures from local and state boaters. Several variables can be cited as important in determining the relatively high share of nonresident boaters in some of the coastal counties. Proximity to a major population center (Kenosha, Racine, Sheboygan and Douglas counties), existence of a nationally known recreation area (Ashland and Bayfield) or the availability of a diversified recreational base (Door county) probably contribute to the relatively high percentage of out-of-state boaters selecting specific areas in Wisconsin. The boater survey planned for the summer of 1976 will provide further information on the reasons for selecting a specific site.

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\* The primary demand area is defined as the states from which a county received its visitors during the summer of 1972.

Table 5. Nonresident Boating Participation as a Percent of Total Participation by County, 1970

County	Nonresident Boating as Percent of Total (1970) (Average Summer Weekend Day)
Ashland	69.6
Bayfield	47.0
Brown	37.8
Door	45.4
Douglas	43.3
Iron	74.3
Kenosha	86.7
Kewaunee	33.4
Manitowoc	4.0
Marinette	26.1
Milwaukee	16.4
Oconto	11.8
Ozaukee	29.5
Racine	42.1
Sheboygan	52.3

#### Great Lakes Boating

As stated previously, boating participation data which distinguishes between boating on the Great Lakes and inland waters are extremely hard to come by. A notable exception to this is the survey data generated by R. Ditton and T. Goodale for purposes of studying marine recreational uses of Green Bay.<sup>1/</sup> The survey, among other questions, queried respondents from five Lake Michigan counties on the location of most boating, fishing and swimming participation. The following locations were identified in the survey: Green Bay, elsewhere on Lake Michigan, Inland Lake, Stream and River.

For the total sample, the location preferences of boaters were evenly divided between inland lakes and Green Bay (41% each).<sup>2/</sup> Thirteen percent of boaters identified streams and rivers, while only 4% of boaters identified

<sup>1/</sup> R. Ditton and T. Goodale, Marine Recreational Uses of Green Bay: A Survey of Human Behavior and Attitude Patterns, University of Wisconsin Sea Grant Program, Report #17, Dec. 1972.

<sup>2/</sup> R. Ditton and T. Goodale, Ibid., p. 124.

"elsewhere on Lake Michigan" as the location most frequently used for boating. The boaters identified proximity, water quality, good facilities and visual qualities as the major determining factors in their choice of location.<sup>1/</sup>

For purposes of this study, the locations identified by boaters are aggregated to show the percent of boaters using Lake Michigan (locations on Green Bay and elsewhere on Lake Michigan). This information is presented on Table 6 by county of residence. The importance of proximity is evident in the case of Door county boaters. The Bay side of the Peninsula and elsewhere on Lake Michigan are the locations selected by 96 percent of the Door County boaters. In the remaining four counties, the availability of other water resources within close range and the low quality of Green Bay water are the factors which lead to increases in the use of inland waters for recreational boating purposes. Ditton and Goodale report that among the boaters who did most of their boating on inland lakes, 58 percent described the Bay as "dirty."<sup>2/</sup>

Table 6. Percent of Boaters Using Lake Michigan

County of Residence	Percent of Boaters Using Lake Michigan
Brown	39.47
Door	95.85
Kewaunee	56.25
Marinette	32.15
Oconto	36.59
Total	45.00

Source: R. Ditton and T. Goodale, Marine Recreational Uses of Green Bay: A Study of Human Behavior and Attitude Patterns, U. W. Sea Grant Program, Report #17, December 1972.

<sup>1/</sup> Ibid., p. 75.

<sup>2/</sup> Ibid., p. 81.

## FISHING

Fishing is one of the most popular outdoor recreation activities among midwestern families. The 1972 Outdoor Recreation Demand Survey found 49 percent of the region's households participating in this activity. Projections for 1980 indicate that the fishing participation rate will increase to over 62 percent of households, i.e., a 3.5 percent annual growth in the participation rate.

Great Lakes Fishing

Sport fishing in the Great Lakes is considered to be the fastest growing element of fishing participation. The introduction of salmon species in Lake Michigan, the increase in fish populations and the introduction of new devices, such as the sensing mechanisms used to identify the location of the fish, have increased the success and, therefore, the attractiveness of fishing in the Great Lakes.

The best evidence of the growth of sport fishing in the Great Lakes is the dramatic increase in the numbers of charter fishing services which operate from at least 20 coastal cities. In the Lake Superior area, Bayfield county has the largest concentration of charter fishing services. In the Lake Michigan region, Milwaukee, Kewaunee and Door counties have the largest concentrations of charter fishing services. Over 100 charter fishing services operate from numerous cities on Lake Michigan. Table 7 shows the location and number of charter fishing services in the coastal zone.

A study on the charter fishing industry of Lake Michigan estimates that in 1973 Lake Michigan charter boats carried 33,418 individuals who caught 84,642 sports fish.<sup>1/</sup> As this industry, which is still in its infancy,

<sup>1/</sup> R. B. Ditton, W. A. Strang, M. T. Dittrich, Wisconsin's Lake Michigan Charter Fishing Industry, U.W. Sea Grant College Program, Advisory Report #1, March 1975, p. 17.

Table 7. Charter Fishing Services

Cities	Number of Charter Fishing Services
Algoma	12
Ashland	3
Baileys Harbor	3
Bayfield	5
Cornucopia	1
Gills Rock	2
Green Bay	1
Kenosha	7
Kewaunee	18
Manitowoc	4
Marinette	2
Milwaukee Area	29
Port Washington	10
Racine	3
Sheboygan	9
Sister Bay	1
Sturgeon Bay	10
Superior	1
Thiensville	1
Two Rivers	12
Washburn	6
Washington Island	2
Total	142

Sources: The Milwaukee Journal Travel Bureau, Lake Michigan and Lake Superior Fishing Charters, May 1974; and DNR, Sport Trolling Boat Licenses, 1975-76, Feb. 1975.

increases in size and as the success stories are related by the fishermen to friends and neighbors back home, the number of individuals involved in this sport can be expected to continue increasing at a very fast rate.

As in the case of boating, very few studies of recreation demand (participation occasions) in the midwest have attempted to distinguish between fishing in the Great Lakes and fishing in inland waters. Once again, the Ditton and Goodale study on the recreational uses of Green Bay provides some insight into the location preferences of fishermen.

Table 8 shows the percent of fishermen using Lake Michigan by county of residence. The information, which is adapted from the Ditton-Goodale survey findings,<sup>1/</sup> indicates proximity as a major factor behind the large percentage of fishermen from Door and Kewaunee counties who select a Great Lakes location. Needless to say, there is more to the location preferences of fishermen than proximity to a given area. For example, when the percent of fishermen using Lake Michigan is compared to the percent of boaters using Lake Michigan, we find larger percentages using inland lakes and streams for fishing than for boating purposes in all counties, except among Kewaunee county residents. This is in line with the observations of Ditton and Goodale that success plays as important a role as proximity in determining the location preferences of fishermen. The authors state that "...fishermen are somewhat less apt to fish in an area because it is close by than are boaters to boat an area, or swimmers to swim it."<sup>2/</sup>

Table 8. Percent of Fishermen Using Lake Michigan

County	Percent of Fishermen Using Lake Michigan
Brown	35.29
Door	82.49
Kewaunee	68.18
Marinette	18.53
Oconto	19.35
Total	35.00

Source: R. Ditton and T. Goodale, Marine Recreational Uses of Green Bay: A Study of Human Behavior and Attitude Patterns, U. W. Sea Grant Program, Report #17, December, 1972.

<sup>1/</sup> R. Ditton and T. Goodale, Op. Cit., pp. 168-177.

<sup>2/</sup> Ibid., p. 77.

Among Kewaunee county fishermen who use Lake Michigan, only 20 percent fished on the Bay side, while the remaining 80 percent fished "elsewhere on Lake Michigan." The large number of charter fishing services which operate out of Kewaunee and Algoma could be cited as support for the Ditton-Goodale findings.

As in the case of boating, there is a need to identify the differences in the fishing experience between the Great Lakes and inland waters. Future surveys are planned to focus on this aspect of fishing participation so as to determine the degree of substitutability between the two types of fishing experiences. Questions relating to the displacability of demand can be addressed once this information is generated.

#### Fishing Licenses

During 1973, of the 958,704 fishing licenses sold in Wisconsin, 58 percent were purchased by Wisconsin residents and 42 percent by out-of-state fishermen.

Table 9 shows the breakdown between resident and nonresident fishing licenses sold in the coastal zone and in the remaining 57 counties. The percentages can be interpreted to mean greater preference of inland-lake-fishing among out-of-state fishermen visiting Wisconsin. The figures can also be interpreted as showing a relatively higher participation rate for fishing among coastal residents as compared to the residents of noncoastal areas. Finally, the percentages could be interpreted as showing a greater propensity

Table 9. Proportion of Resident/Nonresident Fishing Licenses Issued, 1973

Area	Resident	Nonresident	Total
Coastal Zone	79%	21%	100%
Rest of Wisconsin	52%	48%	100%
Total	58%	42%	100%

Source: Wisconsin Dept. of Natural Resources, Licensing Section, Madison, Wisconsin, 1974.

among the Wisconsin fishermen (from coastal and other areas) to visit coastal counties while on a fishing trip.

The breakdown of resident (Wisconsin) and out-of-state visitor families by destination, based on the 1972 Outdoor Recreation Demand Survey data lends support to an interpretation based on the destination preferences of resident and nonresident travelers. As shown on Table 10, Wisconsin residents who take trips lasting more than two days tend to select a destination in the coastal zone, while out-of-state visitors tend to favor the noncoastal counties to a relatively greater extent.

Table 10. Proportion of Resident/Nonresident Visitors by Destination

Area	Resident	Nonresident	Total
Coastal Zone	61%	39%	100%
Rest of Wisconsin	54%	46%	100%
Wisconsin	55%	45%	100%

Source: The Outdoor Recreation Demand Survey, U.G.L. Regional Recreation Planning Study, 1972.

Among other reasons behind the greater preference shown by out-of-state fishermen for inland water fishing we can cite the greater popularity of the inland-water-fishing-experience, higher costs associated with sport fishing on the Great Lakes and, possibly, the fear of large bodies of water.

Table 11 shows the numbers of resident and nonresident fishing licenses sold in the 15 coastal counties during 1973. The breakdown between resident and nonresident fishing licenses sold in the coastal counties suggests four basic county groupings. First, there are the coastal counties where over 90 percent of the fishing licenses were purchased by Wisconsin residents. Sheboygan, Racine, Milwaukee, Manitowoc and Brown are in this county grouping. At

the other extreme, we find a group of counties where over 50 percent of fishing licenses were purchased by nonresidents. Bayfield and Iron counties fall into this group. In Door, Douglas and Kenosha counties, there is a more or less even distribution of fishing licenses between residents and nonresidents. And, finally, the group consisting of Ashland, Kewaunee and Oconto counties, where 25-40 percent of fishing licenses were purchased by out-of-state fishermen.

Table 11. Fishing Licenses Sold In Coastal Counties, 1973

County	Resident Licenses	Percent of Total	Nonresident Licenses	Percent of Total	Total
Ashland	3,005	65	1,587	35	4,592
Bayfield	3,253	35	6,112	65	9,365
Brown	13,581	98	315	2	13,896
Door	5,176	51	5,070	49	10,246
Douglas	6,243	57	4,748	43	10,991
Iron	2,146	28	5,645	72	7,794
Kenosha	11,403	53	9,980	47	21,383
Kewaunee	2,698	75	906	25	3,604
Manitowoc	9,209	92	839	8	10,048
Marinette	7,663	63	4,420	37	12,083
Milwaukee	77,347	97	2,448	3	79,795
Oconto	6,653	73	2,273	27	9,101
Ozaukee	4,594	92	425	8	5,019
Racine	15,185	92	1,285	8	16,470
Sheboygan	11,437	94	718	6	12,155

Source: Wisconsin Department of Natural Resources, Licensing Section, Madison, Wisconsin, 1974.

#### Fishing Participation Data

The county level information on resident and nonresident fishing participation refers to Wisconsin residents as the resident participators. The out-of-state fishermen are classified as nonresident participators. Table 12 summarizes the currently available information on fishing participation for the 15 coastal counties and presents the projections for 1980. The total number of fishing occasions on an average summer weekend

Table 12. Fishing Participation in Coastal Counties (Average Summer Weekend Day)

County	1970		1980		Percent change in total 1970-1980
	Resident	Nonresident	Resident	Nonresident	
Ashland	676	1,655	1,231	3,061	84.1
Bayfield	5,346	3,862	9,732	7,190	83.8
Brown	761	551	1,385	1,013	82.8
Door	3,953	2,733	7,196	5,038	83.0
Douglas	3,520	3,421	6,408	6,359	83.9
Iron	1,807	1,460	3,290	2,687	83.0
Kenosha	949	7,194	1,728	13,245	83.9
Kewaunee	1,336	291	2,432	536	82.4
Manitowoc	1,585	116	2,885	216	82.3
Marinette	7,210	2,090	13,125	3,917	83.2
Milwaukee	2,462	536	4,482	991	82.6
Oconto	7,707	2,390	14,030	4,450	83.0
Ozaukee	1,423	242	2,590	404	79.8
Racine	939	1,227	1,709	2,265	83.5
Sheboygan	1,497	821	2,725	1,511	82.7

day are projected to increase in all coastal counties between 1970 and 1980. The increases range from 80 percent in Ozaukee to 84 percent in Ashland county.

Table 13 shows the nonresident component of total participation in 1970.

Table 13. Nonresident Fishing Participation as a Percent of Total Fishing Participation, by County, 1970 and 1980

County	Nonresident Fishing as a Percent of Total (1970)
Ashland	71.0
Bayfield	41.9
Brown	42.0
Door	40.9
Douglas	49.3
Iron	44.7
Kenosha	88.3
Kewaunee	17.9
Manitowoc	6.8
Marinette	22.5
Milwaukee	17.9
Oconto	23.7
Ozaukee	14.5
Racine	56.6
Sheboygan	35.4

The nonresident fishing participation as a percent of total fishing occasions, when compared with the nonresident fishing licenses as a percent of total for each county, shows sufficient discrepancy to underscore a point--namely, license sales are not a good indicator of where people fish. For example, only 2 percent of total licenses sold in Brown county were identified as nonresident licenses whereas 42 percent of fishermen on an average weekend day were nonresidents. Despite the different time periods and different years to which the two sets of information refer, one can still conclude that there is a low correspondence between where licenses are purchased and where people go fishing.

## SWIMMING

Next to sightseeing, swimming is the most popular recreation activity in the midwest region in terms of the percent of households in which one or more persons engage in the activity. The 1972 Outdoor Recreation Demand Survey determined the swimming participation rate to be about 58 percent among households in a 9-state area of the Upper Midwest. Projections for 1980, based on socioeconomic, supply and other variables, however, indicate a slight decline of 0.25 percent per year in the outdoor swimming participation rate between 1972 and 1980.

The leveling off and slight decline in the swimming participation rate can be attributed to a combination of several factors. First, the increased availability of indoor swimming facilities, both in population centers and in overnight lodging establishments, has resulted in a shift from outdoor to indoor swimming. All the uncertainties associated with outdoor swimming (uncertain weather conditions, water temperatures and water quality considerations) are removed when the swimmer goes indoors. Although the contribution of the sun and other natural elements is removed from the swimming experience, a large number of swimmers seem willing to make the trade-off. There is also a habit component in the outdoor-to-indoor shift in swimming. The outdoor swimming season is, at the most, three months long in the Upper Midwest. During the remaining nine months the only readily available swimming opportunities are indoors. It is safe to assume that a large number of swimmers get used to the conveniences offered by indoor pools and begin to regard the constant air and water temperatures, as well as the clear blue water, as the basic ingredients of the swimming experience.

Secondly, increasing competition from numerous other recreation opportunities has been taking over some of the leisure time devoted to swimming.

Another reason for the anticipated decline in outdoor swimming can be found in changing attitudes toward water quality. Except for the very young who will splash in any kind of water, the awareness of the quality of water has increased among most groups over the past decade. Ditton and Goodale report that the attitude survey indicates the greater importance of "cleaner water" as a reason for selecting a location among swimmers as compared to boaters and fishermen.<sup>1/</sup>

#### Swimming in the Great Lakes

Table 14 shows the percent of swimmers using Lake Michigan by county of residence. The percentages are adapted from the Ditton-Goodale survey findings<sup>2/</sup> and vaguely indicate the continued importance of proximity as a determinant of location preferences. Door and Kewaunee county residents continue to use Green Bay and Lake Michigan more than the residents of the remaining three counties. There is, however, a decrease in the percent using Lake Michigan from boating to fishing to swimming. In Kewaunee county, for example, the number of swimmers using pools is greater than the number using the Bay and other locations on Lake Michigan. Pool usage is also high among residents of Green Bay and suburbs and in the rest of Brown County. On the other hand, inland lakes are the most preferred swimming locations among Marinette and Oconto county swimmers.

For the five counties as a whole, the location preferences of swimmers are dominated by inland lake locations (48%) followed by swimming pools (23%), Green Bay (17%), streams and rivers (9%), and, finally, elsewhere on Lake Michigan (3%).<sup>3/</sup>

<sup>1/</sup> R. Ditton and T. Goodale, Op. Cit., p. 77.

<sup>2/</sup> Ibid., pp. 188-199.

<sup>3/</sup> R. Ditton and T. Goodale, Ibid., p. 124.

Table 14. Percent of Swimmers Using Lake Michigan

County	Percent of Swimmers Using Lake Michigan
Brown	18.52
Door	60.00
Kewaunee	33.36
Marinette	13.17
Oconto	17.06
Total	20.00

Source: R. Ditton and T. Goodale, Marine Recreational Uses of Green Bay: A Study of Human Behavior and Attitude Patterns, U. W. Sea Grant Program, Report #17, December 1972.

#### Swimming Participation Data

The swimming participation data for 1970 and the projections for 1980 are presented on Table 15. The total number of swimming occasions is projected to increase by about 30 percent in most coastal counties by 1980. The projected increase in swimming occasions is less than the projected increases in boating and fishing occasions during the same period due to the slight decline in the swimming participation rate.

The share of nonresidents in total swimming occasions during 1970 is shown on Table 16. Kewaunee, Milwaukee and Brown counties have the lowest nonresident participation, while Kenosha, Ashland and Iron have the highest nonresident swimming occasions.

In Brown county the swimming occasions by nonresidents are very low as compared to nonresident participation in boating and fishing. The same is true in Kewaunee county. On the other hand, the extremely low nonresident participation figures for boating and fishing in Manitowoc county (4% and 7%, respectively, in 1970) jump to 28 percent in the case on nonresident swimming occasions. Among the three water-based activities,

Table 15. Swimming Participation in Coastal Counties (Average Summer Weekend Day)

County	1970		1980		Percent change in total 1970-1980
	Resident	Nonresident	Resident	Nonresident	
Ashland	894	2,048	1,154	2,686	30.5
Bayfield	6,327	5,883	8,167	7,767	30.5
Brown	6,185	978	7,984	1,275	29.3
Door	13,081	10,764	16,886	14,071	29.8
Douglas	6,673	6,395	8,614	8,429	30.4
Iron	1,457	3,062	1,881	3,996	30.1
Kenosha	5,262	18,086	6,792	23,612	30.2
Kewaunee	4,764	451	6,150	589	29.2
Manitowoc	2,054	788	2,651	1,041	29.9
Marinette	9,026	4,206	11,651	5,890	32.6
Milwaukee	22,695	3,190	29,296	4,184	29.3
Oconto	8,461	4,267	10,922	5,633	30.1
Ozaukee	3,412	1,013	4,404	1,199	26.6
Racine	6,641	4,294	8,573	5,622	29.8
Sheboygan	7,105	3,562	9,172	4,649	29.6

the highest nonresident participation is also found in swimming in Oconto county. The availability of numerous inland lake locations and the large number of youth camps located in these counties is the most likely reason behind the high nonresident swimming participation in these counties.

Table 16. Nonresident Swimming Participation as a Percent of Total Swimming Participation by County, 1970

County	Nonresident Swimming as a Percent of Total (1970) (Average Summer Weekend Day)
Ashland	69.6
Bayfield	48.2
Brown	13.7
Door	45.1
Douglas	48.9
Iron	67.8
Kenosha	77.5
Kewaunee	8.6
Manitowoc	27.7
Marinette	31.8
Milwaukee	12.3
Oconto	33.5
Ozaukee	22.9
Racine	39.3
Sheboygan	33.4

#### CAMPING AND HIKING

The major recreational attractions of the coastal areas lie in their unique scenic qualities and in the availability of water-based recreational opportunities. However, a number of land-based activities also need to be introduced into our survey because of their complementarity with some or all water-based activities. Camping and hiking are the two major land-based activities which fall into this category.

Camping participation is expected to increase at an annual rate of 2.8 percent until 1980.<sup>1/</sup> This indicates that interest in camping is leveling off somewhat as compared to the 1960's. Such a generalization, however, does not apply to all types of camping. Wilderness camping can be expected to continue to increase in popularity at a much faster rate than the increasing participation for camping in general.

Hiking, on the other hand, is fast becoming one of the most popular recreation activities among midwestern households. The increased levels of environmental awareness, as well as the increased interest in body conditioning, can be cited as the major factors behind the increasing popularity of this nonenergy consuming activity. The hiking participation rate is projected to increase by 4.8 percent per year until 1980 among midwestern families.<sup>2/</sup>

As travel to coastal counties increases, as Great Lakes fishing and boating increase in popularity, we can also expect increased numbers of people camping and hiking in coastal areas.

Camping and hiking, taken individually, can be considered displaceable recreation activities for the coastal area, in the sense that neither recreation activity requires utilization of the coast or the Great Lakes. They do, however, enter the coastal recreation picture because of their complementarity with fishing and boating participation of families. According to a study of the travel and activity participation patterns of midwestern families,<sup>3/</sup> the correlations between the two water-based

<sup>1/</sup> Somersan, A., et. al., op. cit., p. 44.

<sup>2/</sup> Ibid., p. 44.

<sup>3/</sup> A. Somersan, R. Christiansen, R. Cooper, S. Staniforth, A Regional Study of Recreation Travel Behavior and Participation Patterns, Economic Research Service, USDA, Recreation Resources Ctr., Univ. of Wis.-Ext. and Dept. of Agric. Economics, College of Agric. and Life Sciences, U. of Wis. May 1975. p. 42.

activities and camping and hiking are higher than the relationships observed for most other pairings of activities.

Tables 17 and 18 show the participation in camping and hiking on an average weekend day in 1970, and the projections for 1980, for the 15 coastal counties. The total number of camping occasions is expected to increase in all coastal counties between 1970 and 1980. The increases vary between 57 percent for Ozaukee and 74.5 percent for Douglas county. Kenosha and Brown counties did not have any resident participation in camping in the 1970 DNR survey and, therefore, projections for 1980 are based only on nonresident campers. Hiking participation is projected to increase by over 100 percent between 1970 and 1980.

Table 19 shows nonresident camping and hiking occasions as a percent of total participation occasions in 1970. Nonresident camping occasions as a percent of total are lowest in Kewaunee and Oconto counties. Nonresident hiking occasions are lowest in Milwaukee and Manitowoc counties.

Table 19. Nonresident Camping and Hiking Participation as a Percent of Total Participation by County, 1970

County	Camping 1970	Hiking 1970
Ashland	63.4	26.0
Bayfield	46.3	56.0
Brown	100.0	26.2
Door	45.9	61.6
Douglas	86.8	63.7
Iron	46.5	72.2
Kenosha	100.0	65.5
Kewaunee	3.8	20.3
Manitowoc	60.0	18.4
Marinette	26.1	34.8
Milwaukee	41.7	19.8
Oconto	4.4	31.8
Ozaukee	20.1	23.7
Racine	84.7	51.2
Sheboygan	67.9	38.1

Table 17. Camping Participation in Coastal Counties (Average Summer Weekend Day)

County	1970			1980			Percent Change in Total 1970-1980
	Resident	Nonresident	Total	Resident	Nonresident	Total	
Ashland	277	480	757	475	836	1,311	73.2
Bayfield	2,751	2,374	5,125	4,715	4,161	8,876	73.2
Brown	0	295	295	0	511	511	73.2
Door	6,216	5,284	11,500	10,652	9,170	19,822	72.4
Douglas	525	3,444	3,969	900	6,027	6,927	74.5
Iron	1,026	891	1,917	1,758	1,544	3,302	72.2
Kenosha	0	2,388	2,388	0	4,139	4,139	73.3
Kewaunee	1,656	66	1,722	2,838	114	2,952	71.4
Manitowoc	271	407	678	464	714	1,178	73.7
Marinette	3,273	1,158	4,431	5,609	2,043	7,652	72.7
Milwaukee	381	272	653	653	474	1,127	72.6
Oconto	906	42	948	1,553	74	1,627	71.6
Ozaukee	818	206	1,024	1,402	208	1,610	57.2
Racine	326	1,807	2,133	559	3,141	3,700	73.5
Sheboygan	1,264	2,670	3,934	2,166	4,626	6,792	72.6

Table 18. Hiking Participation in Coastal Counties (Average Summer Weekend Day)

County	1970			1980			Percent Change in Total 1970-1980
	Resident	Nonresident	Total	Resident	Nonresident	Total	
Ashland	1,165	410	1,575	2,356	842	3,198	103.0
Bayfield	2,183	2,784	4,967	4,415	5,758	10,173	104.8
Brown	858	306	1,164	1,735	625	2,360	102.7
Door	4,103	6,583	10,686	8,297	13,481	21,778	103.8
Douglas	1,373	2,414	3,787	2,776	4,985	7,761	104.9
Iron	689	1,791	2,480	1,393	3,662	5,055	103.8
Kenosha	1,171	2,224	3,395	2,368	4,549	6,917	103.7
Kewaunee	983	250	1,233	1,987	511	2,498	102.6
Manitowoc	1,440	325	1,765	2,912	673	3,585	103.1
Marinette	3,503	1,867	5,370	7,084	3,887	10,971	104.3
Milwaukee	6,683	1,653	8,336	13,515	3,397	16,912	102.9
Oconto	2,296	1,071	3,367	4,643	2,215	6,858	103.7
Ozaukee	1,612	502	2,114	3,260	931	4,191	98.2
Racine	1,365	1,433	2,798	2,760	2,939	5,699	103.7
Sheboygan	1,871	1,153	3,024	3,784	2,357	6,141	103.1

## SIGHTSEEING

The sightseeing opportunities offered by the numerous scenic areas throughout Wisconsin's coastal zone have to be considered as major attractions in any survey of recreational resources. Sightseeing is an integral part of almost any family recreational outing. Scenic qualities of an area and accommodating the interests of most family members are among the most important considerations in selecting a vacation destination.

Table 20 shows resident and nonresident sightseeing participation for 1970 and 1980. The share of nonresident occasions in total sightseeing occasions is shown on Table 21. Sightseeing in the coastal counties is projected to increase by about 62 percent over the 10-year period. Nonresident sightseeing as a percent of total occasions is lowest in Kewaunee county and highest in Kenosha and Douglas counties.

Table 21. Nonresident Sightseeing as a Percent of Total Participation by County, 1970

County	Nonresident Sightseeing as a Percent of Total (1970)
Ashland	62.6
Bayfield	53.5
Brown	23.7
Door	63.8
Douglas	81.3
Iron	62.0
Kenosha	83.3
Kewaunee	6.6
Manitowoc	30.4
Marinette	54.3
Milwaukee	22.8
Oconto	27.6
Ozaukee	22.3
Racine	38.7
Sheboygan	43.2

Table 20. Sightseeing Participation in Coastal Counties (Average Summer Weekend Day)

County	1970			1980			Percent Change in Total 1970-1980
	Resident	Nonresident	Total	Resident	Nonresident	Total	
Ashland	1,003	1,680	2,683	1,617	2,739	4,356	62.4
Bayfield	1,720	1,979	3,699	2,714	3,265	6,039	63.3
Brown	4,667	1,451	6,118	7,526	2,364	9,890	61.7
Door	5,593	9,837	15,430	9,019	16,064	25,083	62.6
Douglas	865	3,754	4,619	1,395	6,181	7,576	64.0
Iron	318	519	837	512	846	1,358	62.2
Kenosha	1,554	7,755	9,309	2,506	12,648	15,154	62.8
Kewaunee	927	66	993	1,495	108	1,603	61.4
Manitowoc	1,646	720	2,366	2,654	1,189	3,843	62.4
Marinette	2,078	2,474	4,552	3,351	4,107	7,458	63.8
Milwaukee	22,374	6,618	28,992	36,081	10,845	46,926	61.9
Oconto	1,005	384	1,389	1,621	633	2,254	62.3
Ozaukee	3,132	897	4,029	5,051	1,326	6,377	58.3
Racine	3,475	2,192	5,667	5,604	3,585	9,189	62.1
Sheboygan	2,196	1,668	3,864	3,541	2,719	6,260	62.0

SUPPLY OF RECREATION IN THE COASTAL COUNTIES AND COASTAL  
TOWNSHIPS

This section seeks to gain a rough impression of how demand for boating, fishing, swimming and camping is oriented to the coastal tier of townships. This objective is pursued by noting the proportion of public facilities for boating, fishing, swimming and camping in coastal townships compared to the total number of public facilities in the county for each activity. Though in certain respects this analytical approach has pitfalls, it also gives a rough impression of where projected growth in specific recreation activities expressed at the county level can be expected to have a high coastal orientation.

Methodology. A more detailed description of data sources used for the tabulation of facilities for each of the four activities is provided in Appendix B at the end of this section. The supply of recreation opportunities for the above four activities has been indicated by public access points. Points of access to boating opportunities, for instance, include ramps, launching areas, recreational boating harbors and moorings. It should be mentioned that only lakes 200 acres or larger, or lakes greater than 100 acres where respondents consistently indicated water-skiing, were considered as inland water resources suitable for boating. (Questionnaire referred to is that used in the 1970 DNR Outdoor Recreation Facilities Survey). Data on private access to swimming and camping areas, an aggregate of hotels, motels, and resorts, and a separate category, restaurants, were tabulated to cross-check for correspondence of their spatial distribution in each county with the spatial distribution of public access to boating, fishing, swimming and camping facilities.

Tables 22, 23 and 24 illustrate the data. From data in Table 22, the percent of county total access points for each activity were calculated for each county. The county maps,\* at the end of this section, illustrate the data for public access. County road maps are also included to illustrate the amount of inland lakes for the various counties. To simplify the analysis, counties were grouped in Table 24 as to high, moderate, or low coastal orientation according to the following criteria: less than 33% = low coastal orientation, from 33% - 66% - moderate coastal orientation, and greater than 66% = high coastal orientation.

There are two specific weaknesses in the following analysis which require remedy in the second year. First, capacities of located points of access are not known, and for purposes of this analysis are assumed equal for each activity. Also, the data on private facilities are not complete. It is unclear what kind of bias these exclusions may introduce into the analysis. Even though the coastal orientation of swimming beaches, as an example, could be understated in their equal weighting with smaller inland beaches, the demand and, therefore, the pressures, may still be expressed as a preference for inland beaches. To adequately tell where the pressures for developing recreation facilities are going to occur, more needs to be known about the coastal versus inland preferences of recreationists. Also more needs to be known whether the kinds and costs of recreation experiences offered by the coastal zone have a broad or a very specific market base. The interpretation of the coastal orientation of demand for swimming could be significantly biased in counties where public swimming beaches are located along the coast and private swimming beaches around inland

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\* County maps for Milwaukee county are not included.

TABLE 22  
NUMBER OF FACILITIES FOR SELECTED RECREATION  
ACTIVITIES IN COASTAL COUNTIES & COASTAL TOWNSHIPS\*

	Public Facilities								Total Public	
	Boating		Fishing		Swimming		Camping		Coastal Twp. County	
Northwestern Region	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County
Ashland	4	9	6	35	3	5	2	12	15	61
Bayfield	16	21	18	109	9	18	12	22	55	170
Douglas	2	8	3	58	3	7	1	9	9	82
Iron	1	16	2	36	1	4	1	6	5	62
Bay Lake Region										
Brown	5	7	11	12	0	2	0	1	16	22
Door	36	36	79	80	22	23	3	3	140	142
Kewaunee	5	5	12	14	4	4	3	3	24	26
Manitowoc	7	8	13	33	6	7	1	2	27	50
Marinette	6	20	14	84	2	8	3	14	25	126
Oconto	6	15	9	99	4	17	3	9	22	140
Sheboygan	5	8	24	46	9	11	2	4	40	69
Southeastern Region										
Kenosha	2	12	5	21	5	9	0	0	12	42
Milwaukee	3	3	22	33	8	8	0	0	33	44
Ozaukee	4	4	14	19	4	4	0	1	22	28
Racine	2	9	5	15	5	8	1	1	13	33

	Private Facilities								Total Private		Grand Total	
	Swimming		Camping		Hotel-Motel-Resort		Restaurants		Coastal Twp. County		Coastal Twp. County	
Northwestern Region	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County	Coastal Twp.	County
Ashland	2	8	2	10	28	69	61	114	93	201	108	262
Bayfield	0	5	10	18	45	309	34	98	89	430	144	600
Douglas	1	13	0	9	26	94	117	105	144	311	153	393
Iron	0	5	1	6	1	97	6	69	5	175	13	237
Bay Lake Region												
Brown	0	0	0	1	31	37	343	441	374	479	390	501
Door	2	2	4	4	323	323	141	154	470	483	610	625
Kewaunee	0	0	1	1	11	18	44	82	56	101	80	127
Manitowoc	1	3	1	2	23	30	171	261	196	296	223	346
Marinette	0	3	1	10	15	80	82	209	98	302	123	428
Oconto	2	9	3	9	8	79	42	165	55	262	77	402
Sheboygan	0	7	2	4	18	65	192	309	212	385	252	454
Southeastern Region												
Kenosha	0	28	0	0	24	72	272	371	296	471	308	513
Milwaukee	0	0	1	2	74	107	2076	2568	2151	2677	2184	2721
Ozaukee	0	1	0	1	8	8	87	138	95	148	117	176
Racine	0	7	1	1	14	39	323	437	338	484	351	517

\* Sources of data documented in Appendix B.

TABLE 23  
PERCENT OF FACILITIES FOR SELECTED RECREATION  
ACTIVITIES IN COASTAL TOWNSHIPS\*

Northwestern Region	Public Facilities			Total Private Facilities			Total	Grand Total			
	Boating Fishing Swimming			Camping Hotel-Motel-Resort Restaurant							
	Boating	Fishing	Swimming	Camping	Public	Swimming			Camping		
Ashland	44	17	60	17	25	25	20	41	54	46	41
Bayfield	76	17	50	55	32	0	56	15	35	21	24
Douglas	25	5	43	11	11	8	0	28	60	46	39
Iron	6	6	25	17	8	0	17	1	9	5	5
Bay Lake Region											
Brown	71	92	0	0	73	0	0	84	78	78	78
Door	100	99	96	100	99	100	100	100	92	97	98
Kewaunee	100	86	100	100	92	0	100	61	54	55	63
Manitowoc	88	39	86	50	54	33	50	77	66	66	64
Marinette	30	17	25	21	20	0	10	19	39	32	29
Oconto	40	9	24	33	16	22	33	10	25	21	19
Sheboygan	63	52	82	50	58	0	50	28	62	55	56
Southeastern Region											
Kenosha	17	24	56	0	29	0	0	33	73	63	60
Milwaukee	100	75	100	0	75	0	50	69	81	80	81
Ozaukee	100	76	100	0	79	0	0	100	63	64	66
Racine	22	33	63	100	39	0	100	36	74	69	68

\* Percents are calculated from data in Table 1

TABLE 24  
COASTAL ORIENTATION OF SELECTED  
PUBLIC & PRIVATE RECREATION FACILITIES\*

	Public Facilities			Total			Privat Facilities			Total			Grand Total
	Boating	Fishing	Swimming	Camping	Public		Swimming	Camping	Hotel-Motel-Resort	Restaurant	Private		
<u>Northwestern Region</u>													
Ashland	M	L	M	L	L		L	L	M	M	M	M	
Bayfield	H	L	M	M	L		L	L	M	M	L	L	
Douglas	L	L	M	L	L		L	L	M	M	M	M	
Iron	L	L	L	L	L		L	L	L	L	L	L	
<u>by Lake Region</u>													
Brown	H	H	L	L	H		-	L	H	H	H	H	H
Door	H	H	H	H	H		H	H	H	H	H	H	H
Kewaunee	H	H	H	H	H		-	H	M	M	M	M	M
Manitowoc	H	M	H	M	M		M	M	H	H	H	H	M
Marinette	L	L	L	L	L		L	L	M	M	L	L	L
Oconto	M	L	L	L	L		L	M	L	L	L	L	L
Sheboygan	M	M	H	M	M		L	L	M	M	M	M	M
<u>outhwestern Region</u>													
Kenosha	L	L	M	-	L		L	-	M	H	M	M	M
Milwaukee	H	H	H	-	H		-	H	M	H	H	H	H
Ozaukee	H	H	H	L	H		L	L	M	M	M	M	M
Racine	L	L	M	H	M		L	L	M	H	H	H	M

Criteria for categories of coastal orientation are H = high coastal orientation where greater than 66% of the recreation facilities in a county are located in the coastal town ships, M = moderate coastal orientation (33% - 66%), and L = low coastal orientation (less than 33%).

lakes. More kinds of private recreation facilities need to be inventoried in order to gain a clearer impression of their role vis-a-vis public facilities in accommodating recreation in the coastal counties.

The other weakness is in the limited number of activities for which available data made analysis possible. Tourism and recreation include a wide range of different vacationers utilizing different kinds of recreation facilities. A major recreation use of coastal land which is not included in this report is recreational housing which represents a unique source of pressure on coastal lands. Also, the recreational home subdivisions themselves may be competing for coastal sites with other uses. This question will be considered in the second year study of large recreational home subdivisions.

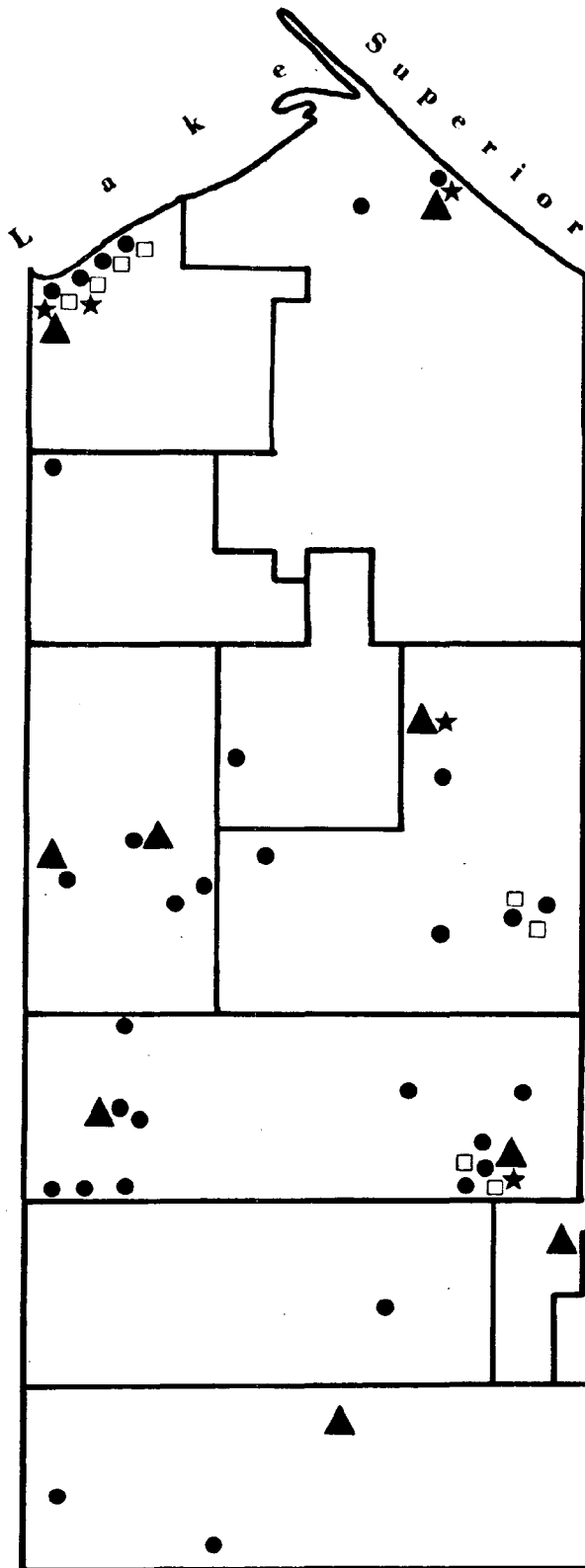
Analysis. Figures in Table 23 were organized in Table 24 to establish a general coastal orientation (high, moderate, low) for all facilities combined, which was calculated as the number of access points to all activities located in the coastal townships as a percent of the county total. (Refer to maps, also). The intent of this table is to illustrate: a) where recreation facilities appear to be highly oriented to the coast (thereby suggesting that demand and pressures are highly oriented to the coast), and b) where coastal recreation facilities appear to serve a broad-based recreation market or highly specific recreation markets.

It is immediately apparent that Door county has a consistently high coastal orientation for all activities, and that Iron and Marinette counties have consistently low coastal orientation for all activities, which only confirms strong expectations. For these counties, demand can be interpreted as following the orientation of supply. Between these two extremes, Table 24 illustrates a wide range of variation

in the amount and type of coastal orientation for the remaining counties. Specific situations for these counties differ according to the amount of inland water resources compared with miles of county coast line and constraints (bluffs, wetlands) or access to the water. For instance, in Brown and Ozaukee counties, where there are hardly any inland lakes, the significant projected increases in boating and fishing participation and, therefore, the pressures for facilities and water access are most likely to be coastal-oriented. Beyond these two counties, though, the spatial distribution of public recreation facilities does not suggest clear implications as to whether or not significant increases in boating, fishing, swimming or camping participation will be oriented to the coast. Of particular note, in this regard, are Kenosha and Douglas counties, both of which have significant amounts of inland lakes and where the coastal orientation of boating and fishing facilities is low. Yet, with the high increases expected in boating and fishing participation, the coastal orientation of a fraction of the increase would mean significant pressures for the development of coastal boating facilities and fishing access.

In order to clarify these types of situations, surveys will be made in the second year, especially focusing on boating and fishing, to estimate the characteristics and size of the demand groups served by coastal boating and fishing facilities. In this way, the coastal element of county demand projections can be established. Also, the potential displaceability of additional facilities or the priority of additional facilities with respect to other coastal uses can be assessed when the degree of substitutability of an inland experience for a coastal experience can be established.

# ASHLAND CO.

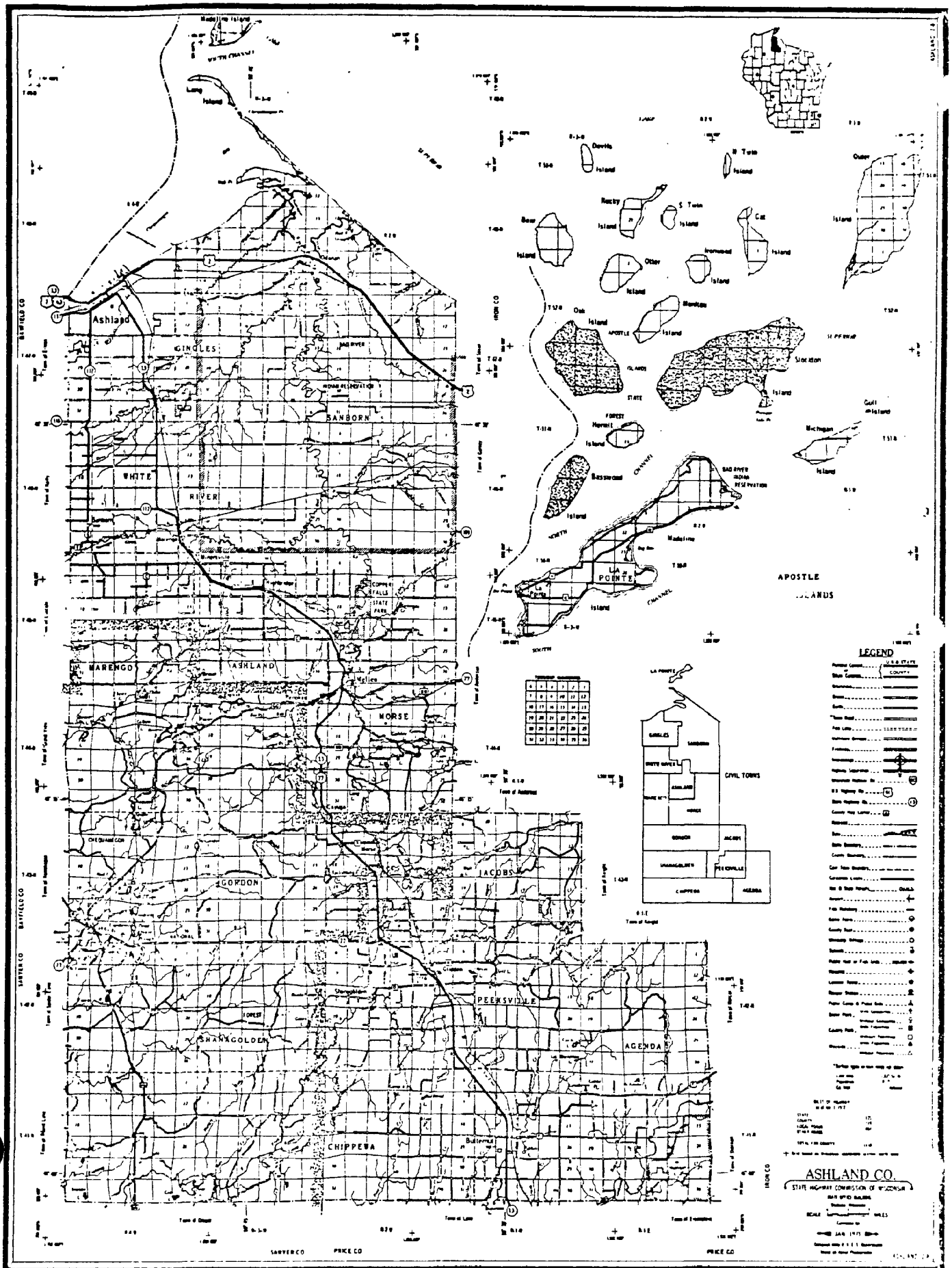


## LEGEND

facility type (public only)

★ swimming      ● fishing

▲ camping      □ boating

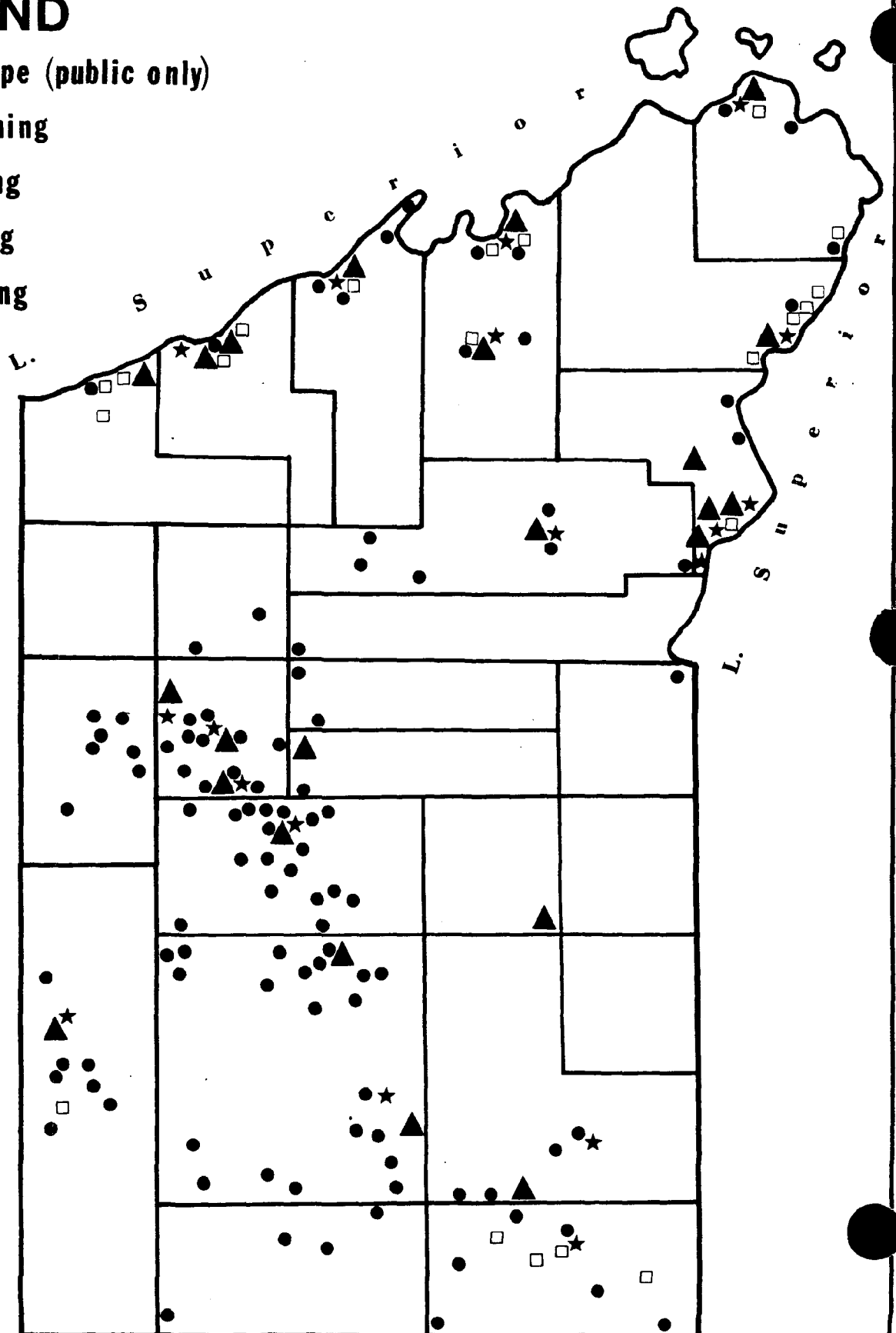


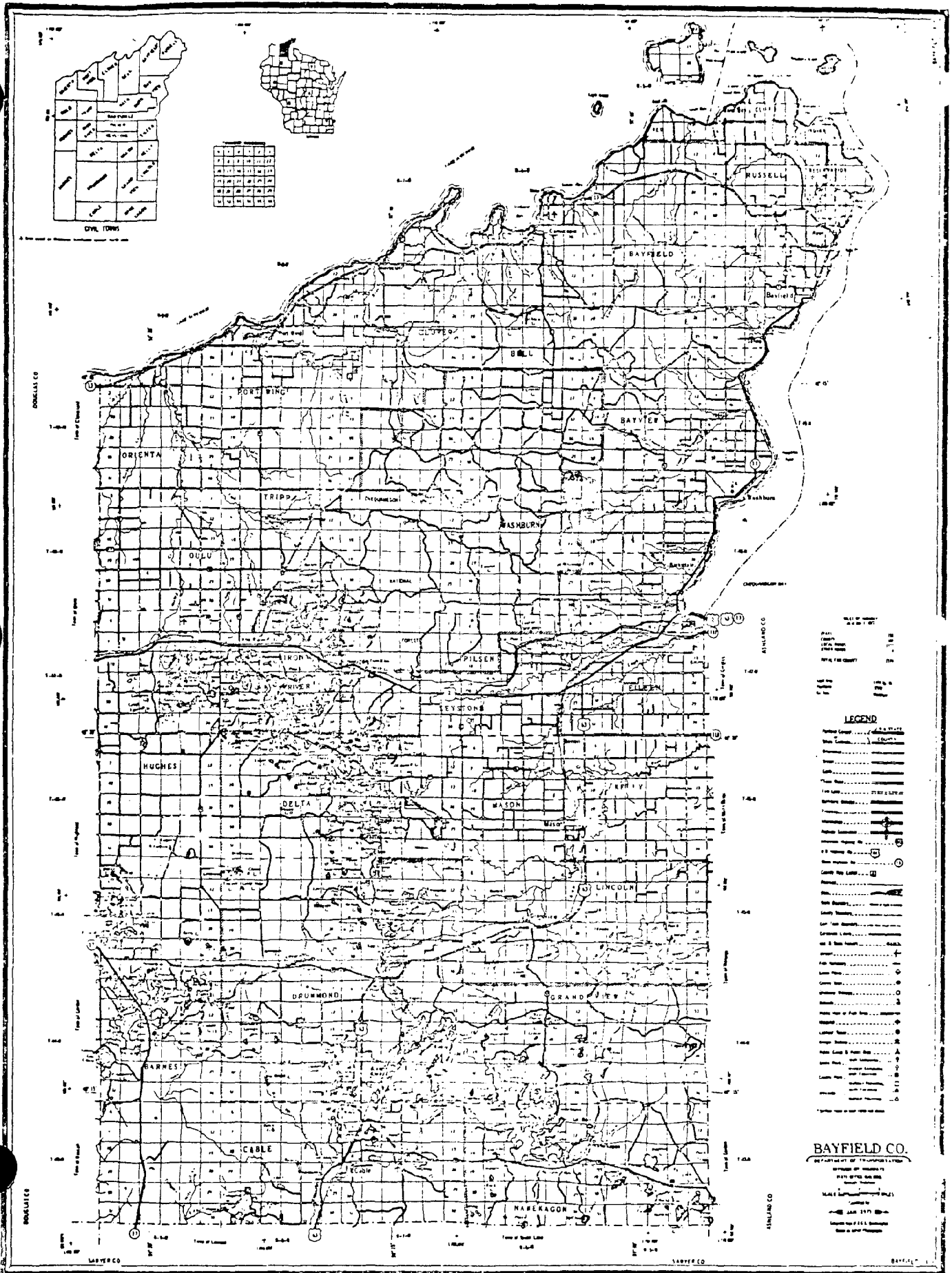
## BAYFIELD CO.

## LEGEND

facility type (public only)

- ★ swimming
- boating
- fishing
- ▲ camping



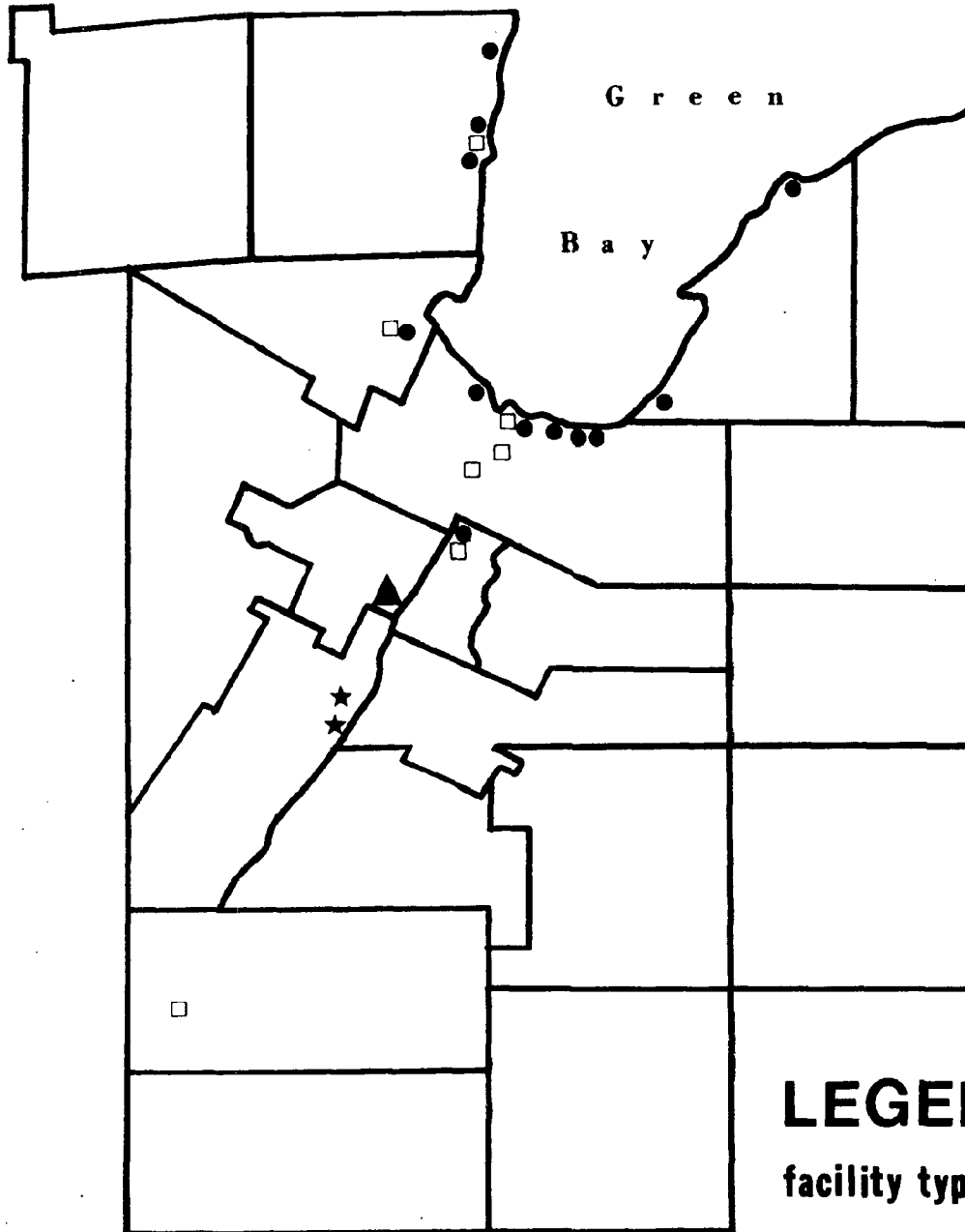


**LEGEND**

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**BAYFIELD CO.**  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 BAYFIELD, WISCONSIN  
 JAN 1970

# BROWN CO.



## LEGEND

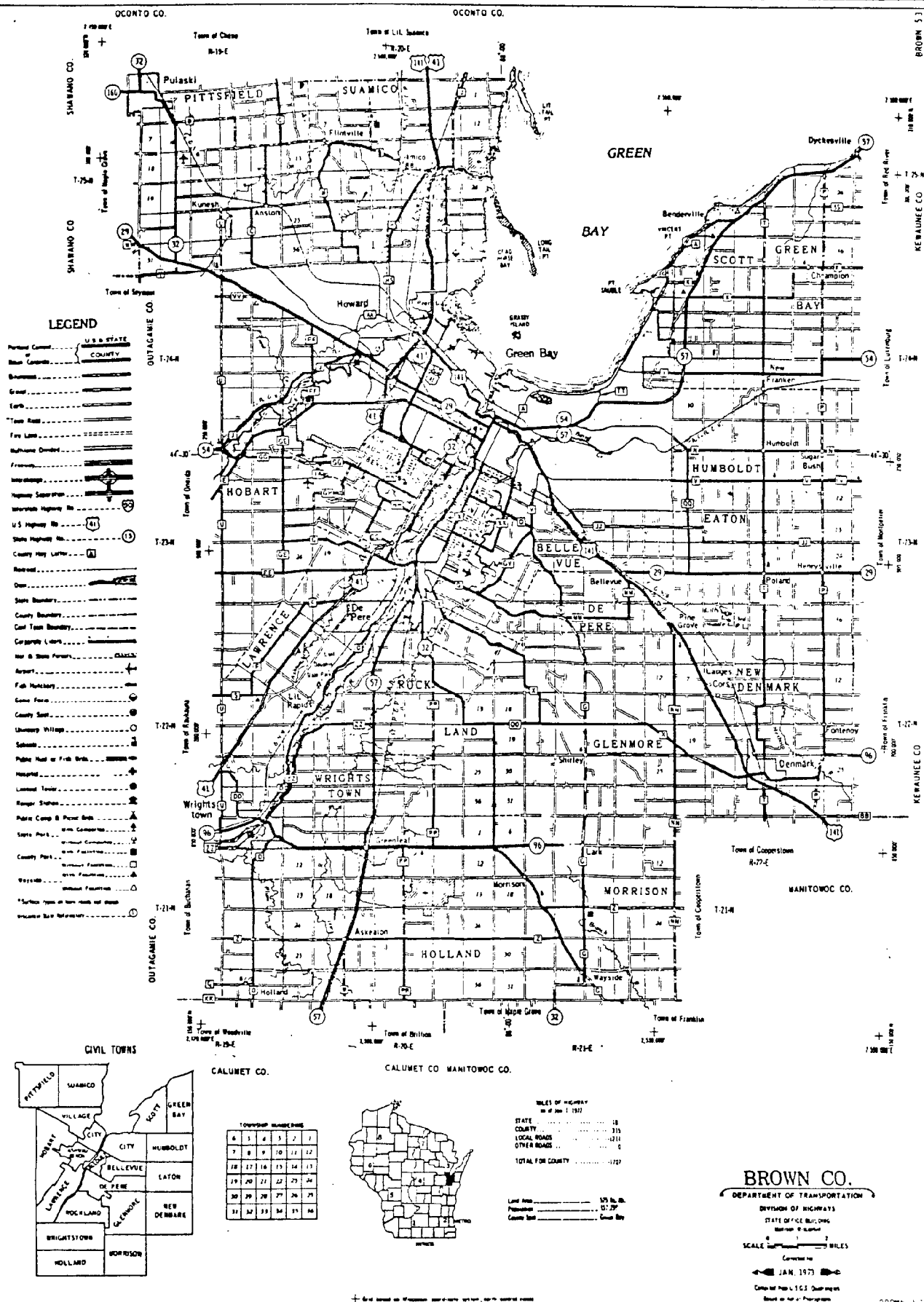
facility type [public only]

★ swimming

□ boating

• fishing

▲ camping

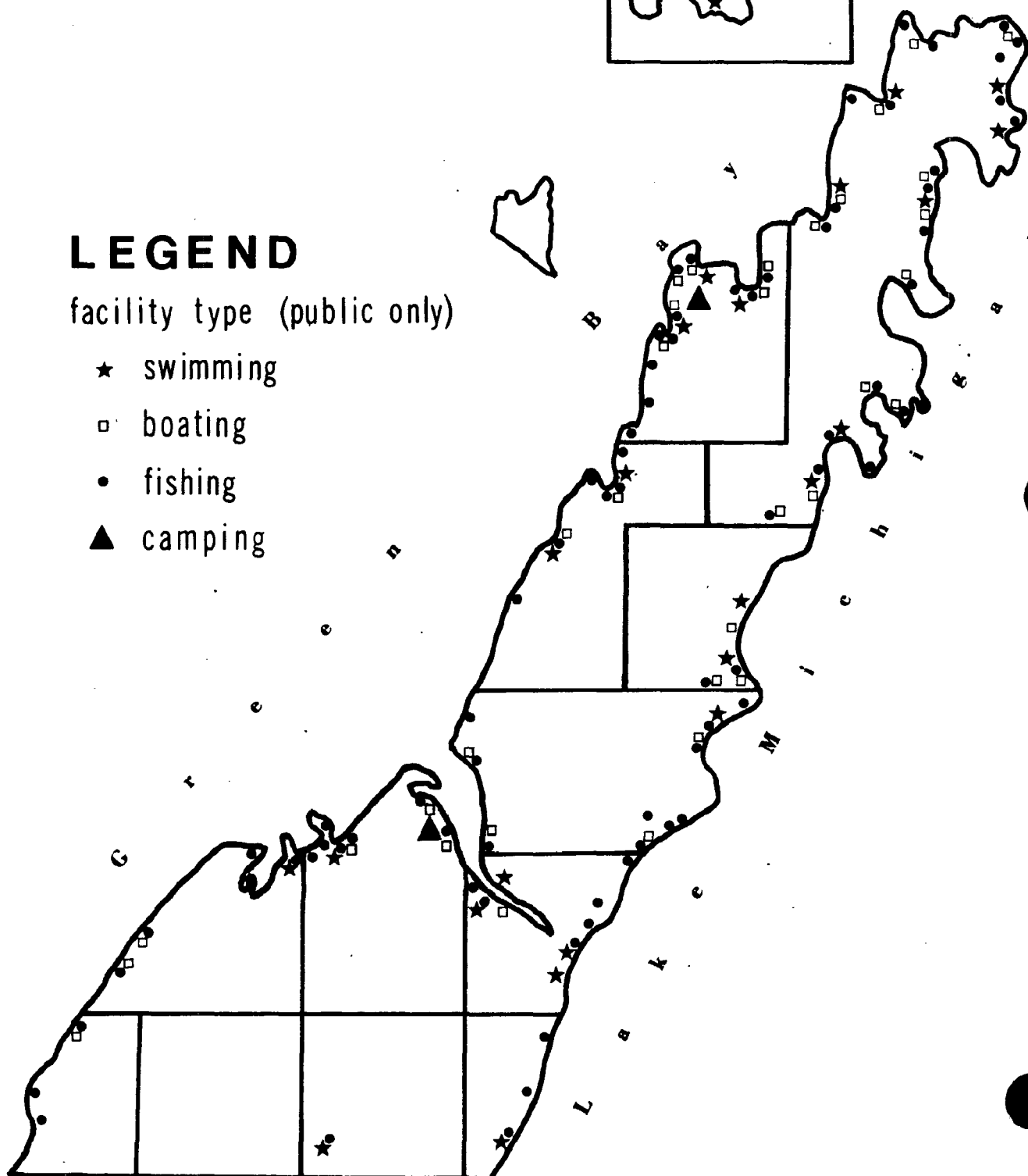


# DOOR CO.

## LEGEND

facility type (public only)

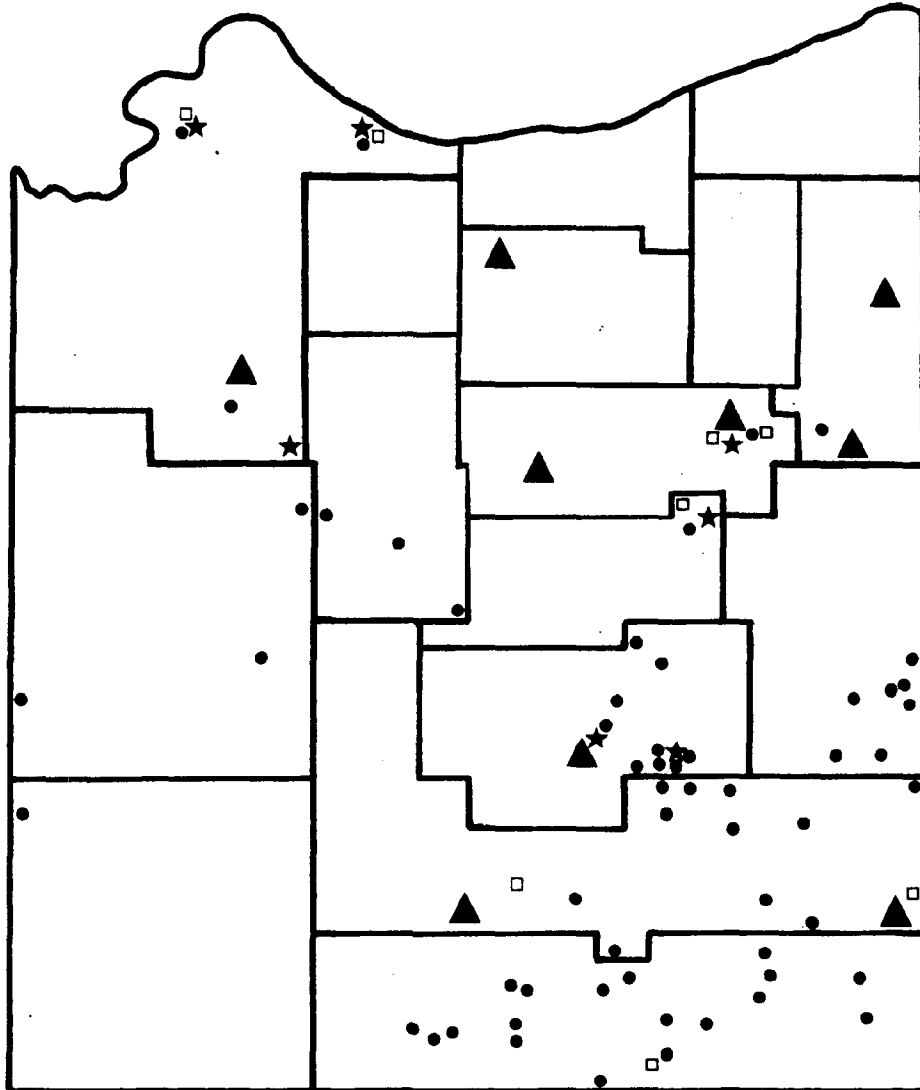
- ★ swimming
- boating
- fishing
- ▲ camping





# DOUGLAS CO.

L. S u p e r i o r



## LEGEND

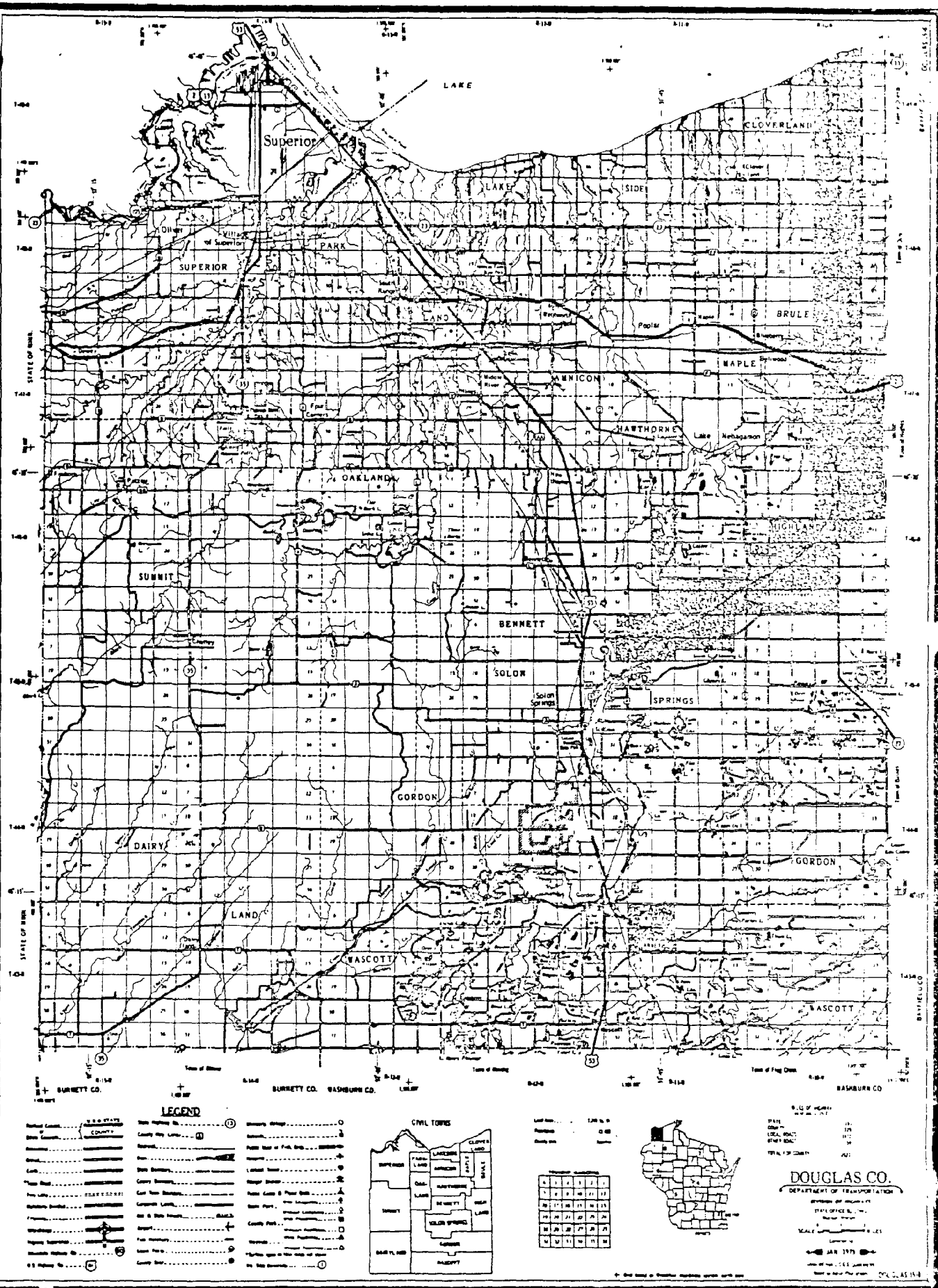
facility type [public only]

★ swimming

• fishing

□ boating

▲ camping



# IRON CO.

*L. Superior*

## LEGEND

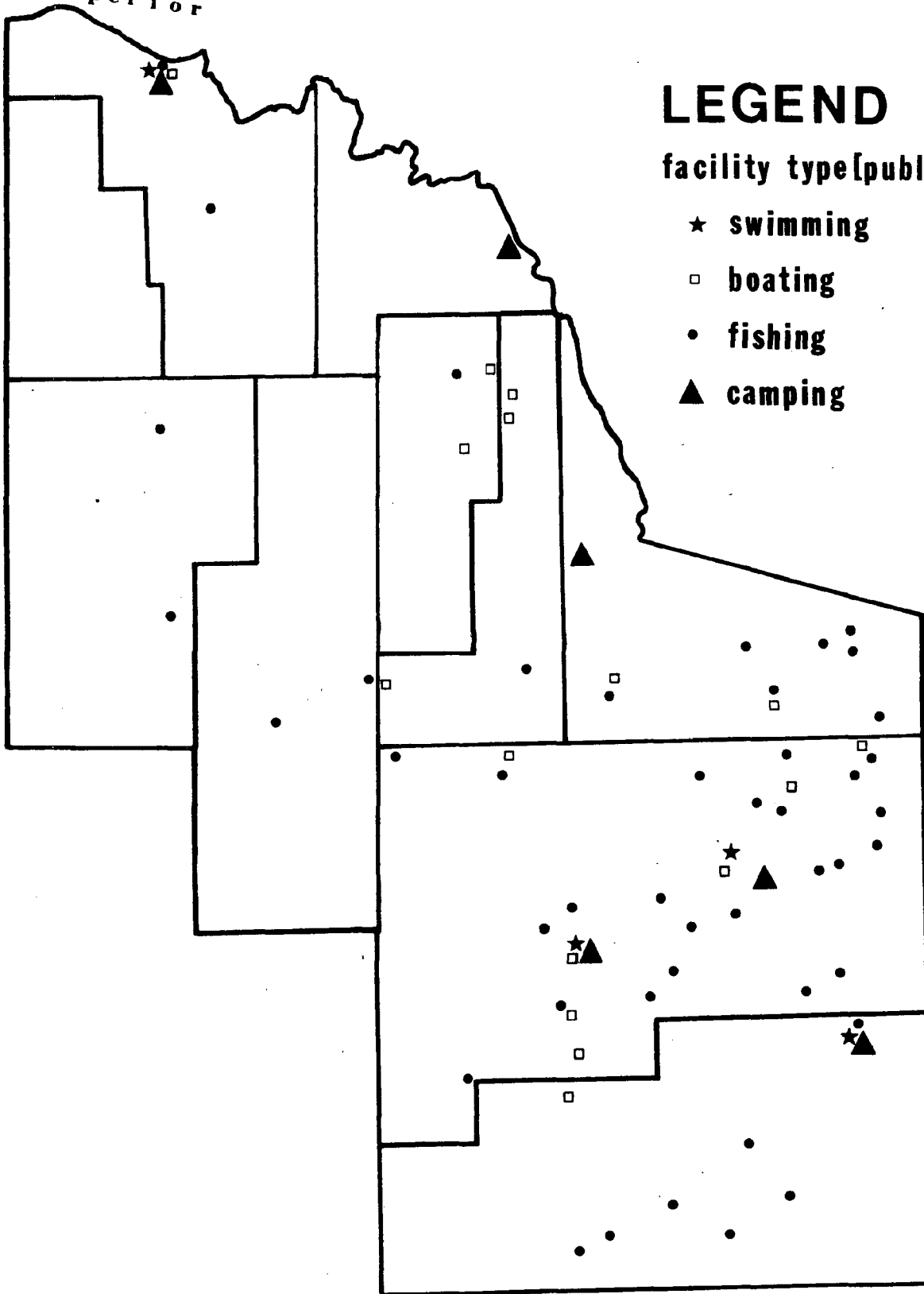
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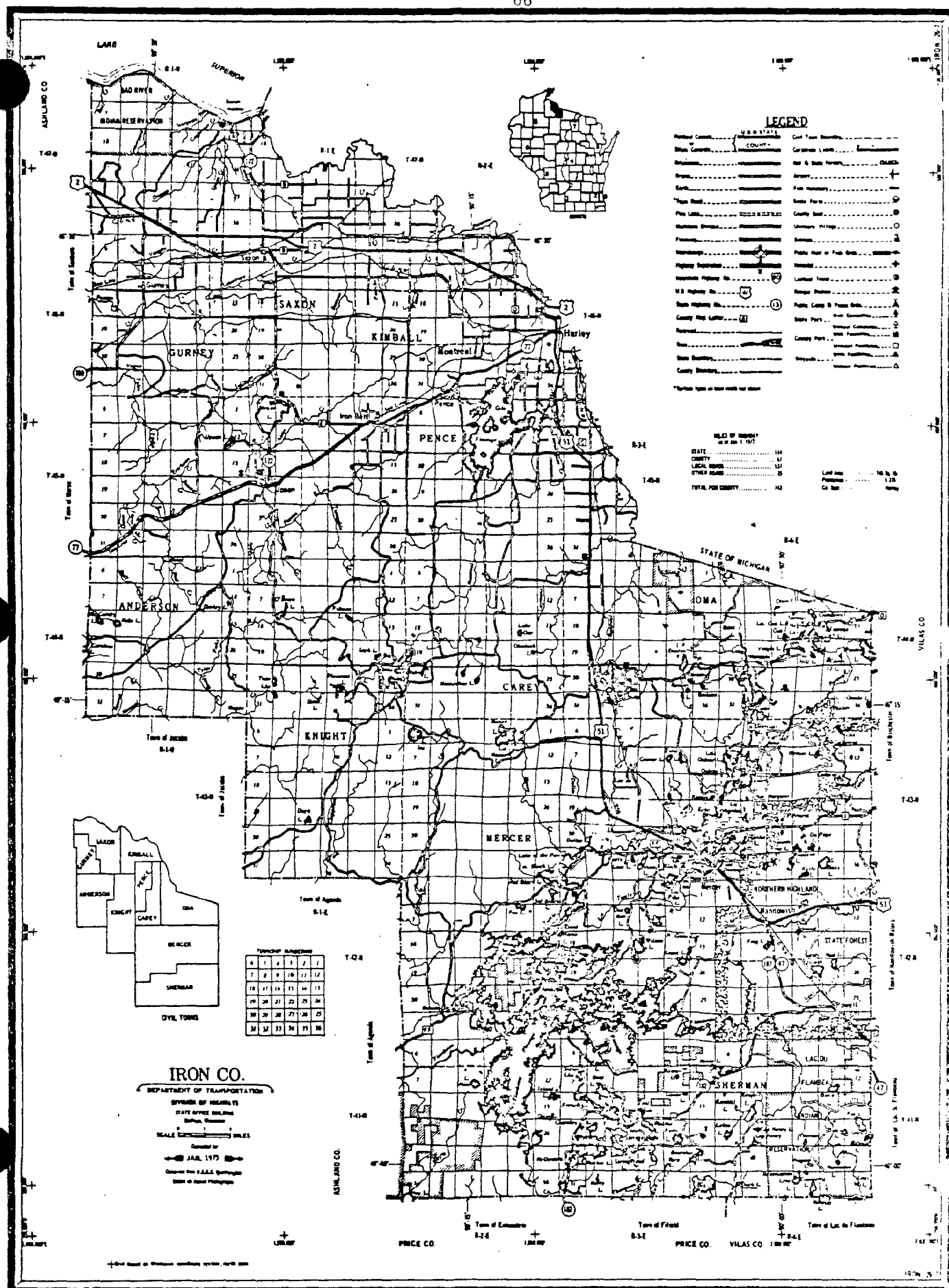
★ swimming

□ boating

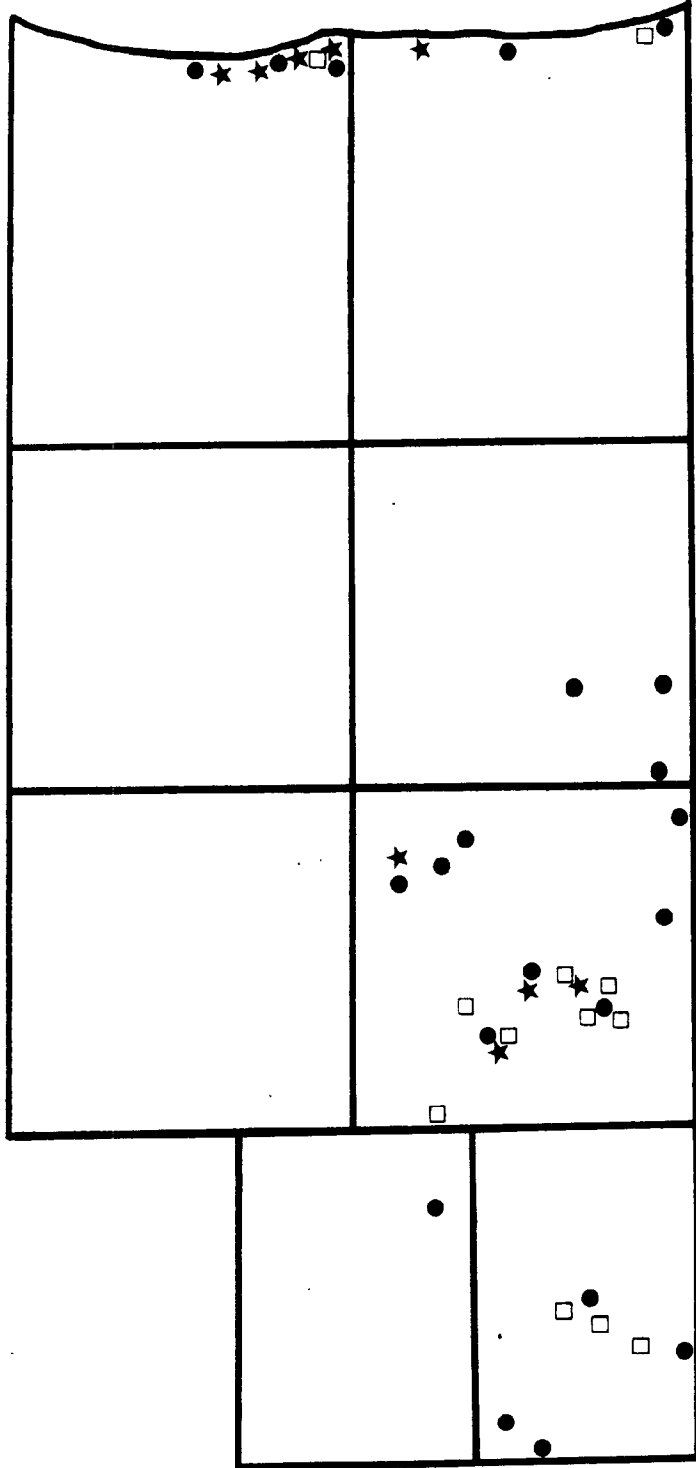
• fishing

▲ camping





# KENOSHA CO.



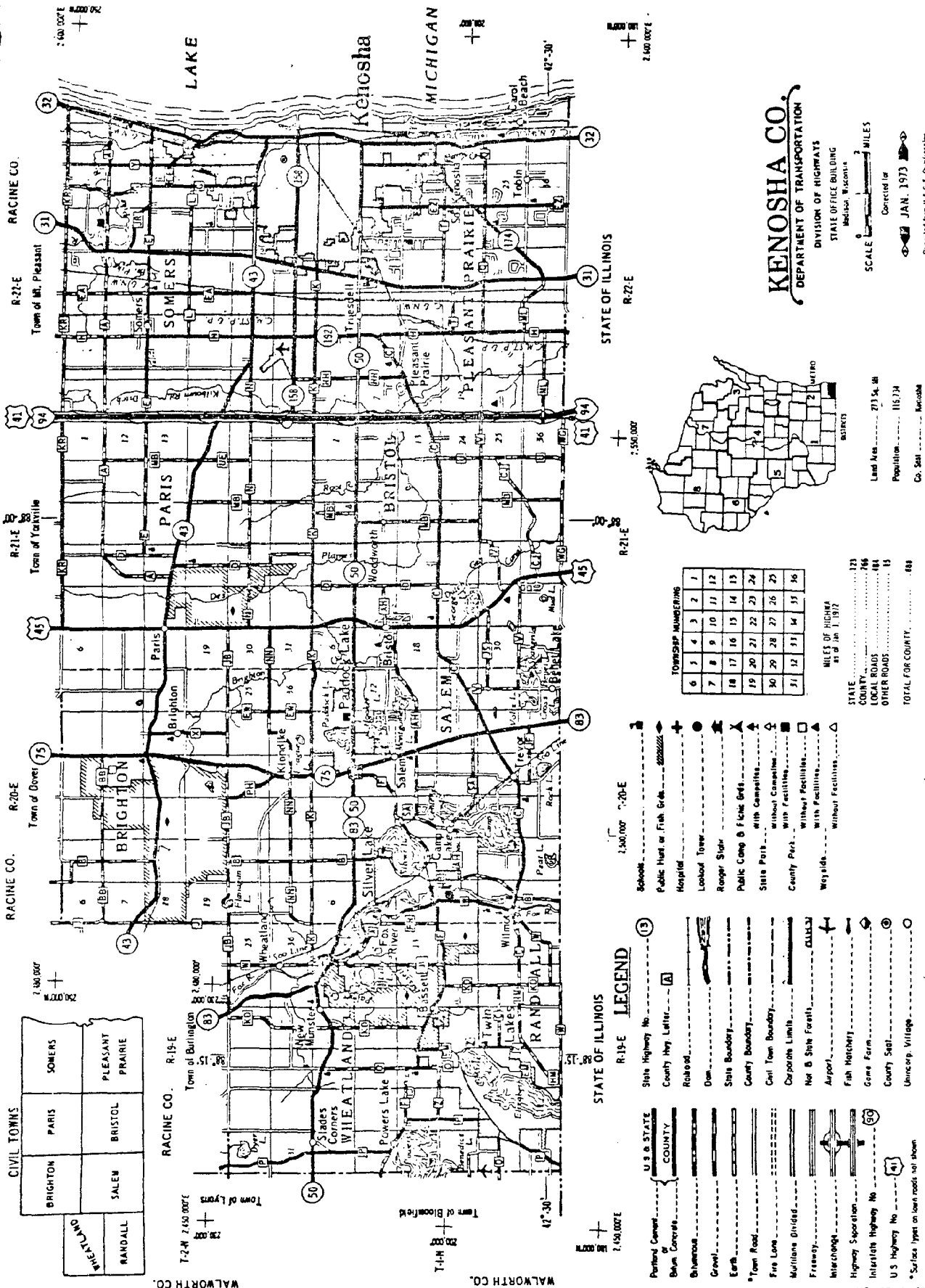
## LEGEND

facility type (public only)

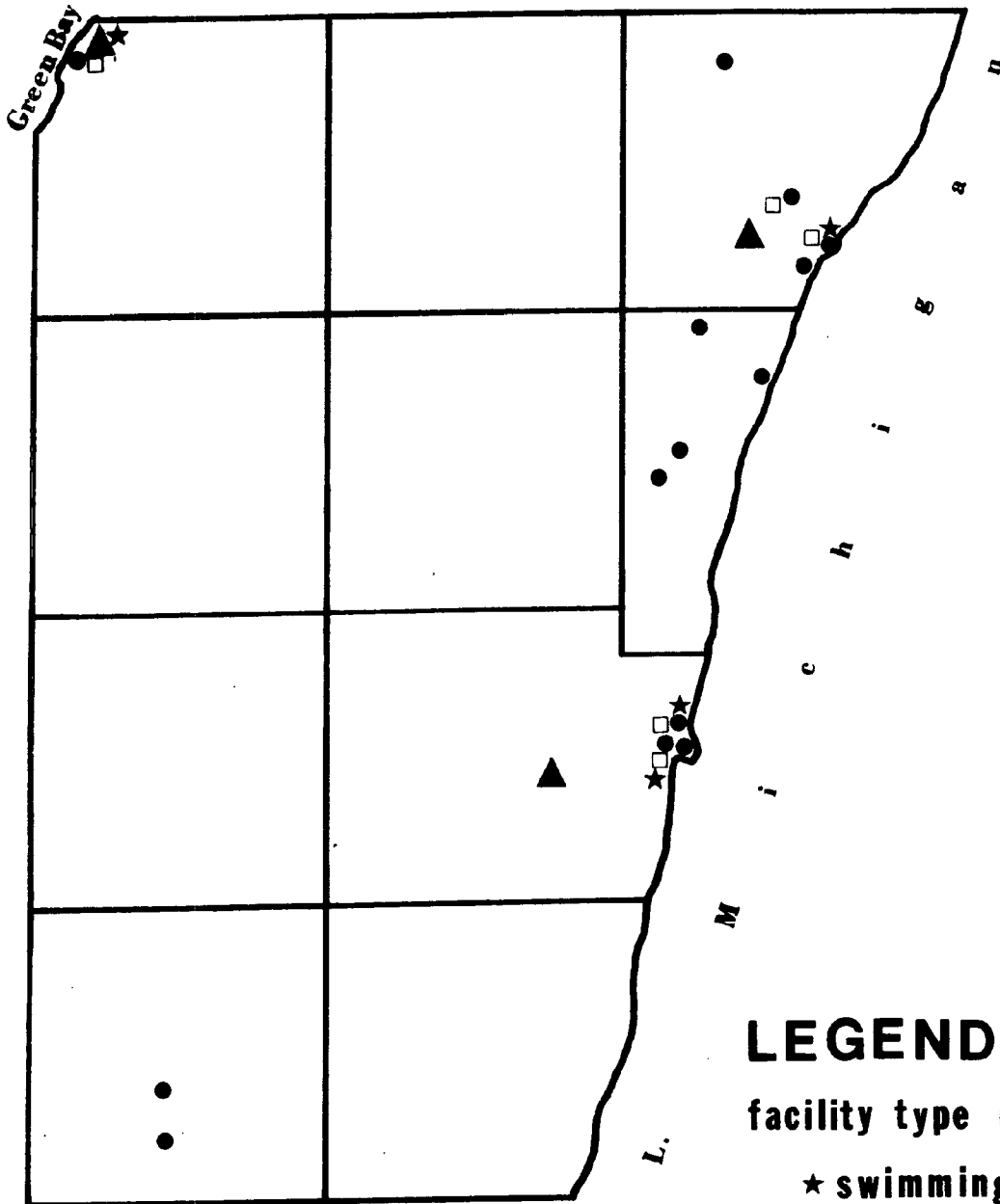
★ swimming

□ boating

• fishing



# KEWAUNEE CO.



## LEGEND

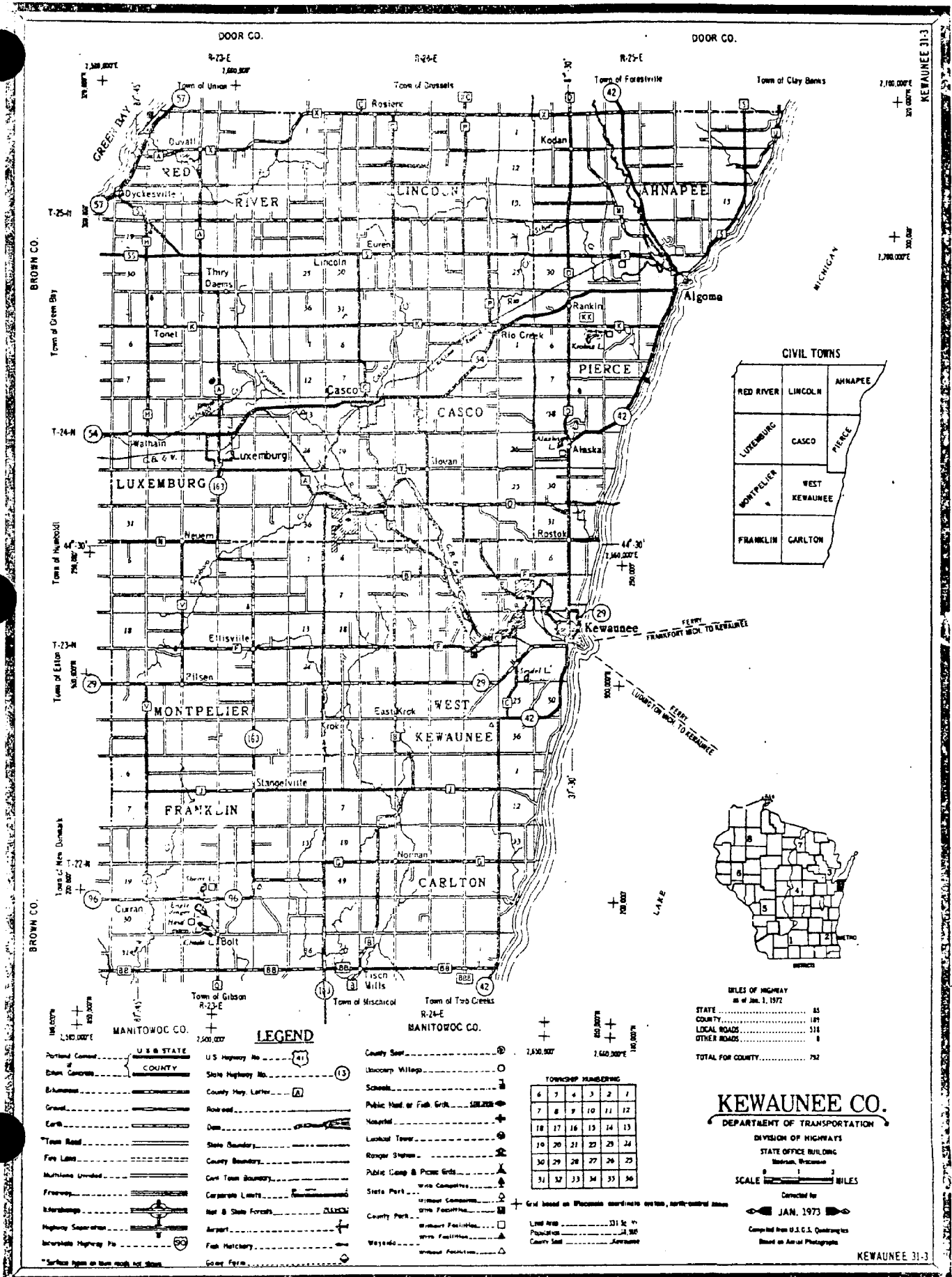
facility type (public only)

★ swimming

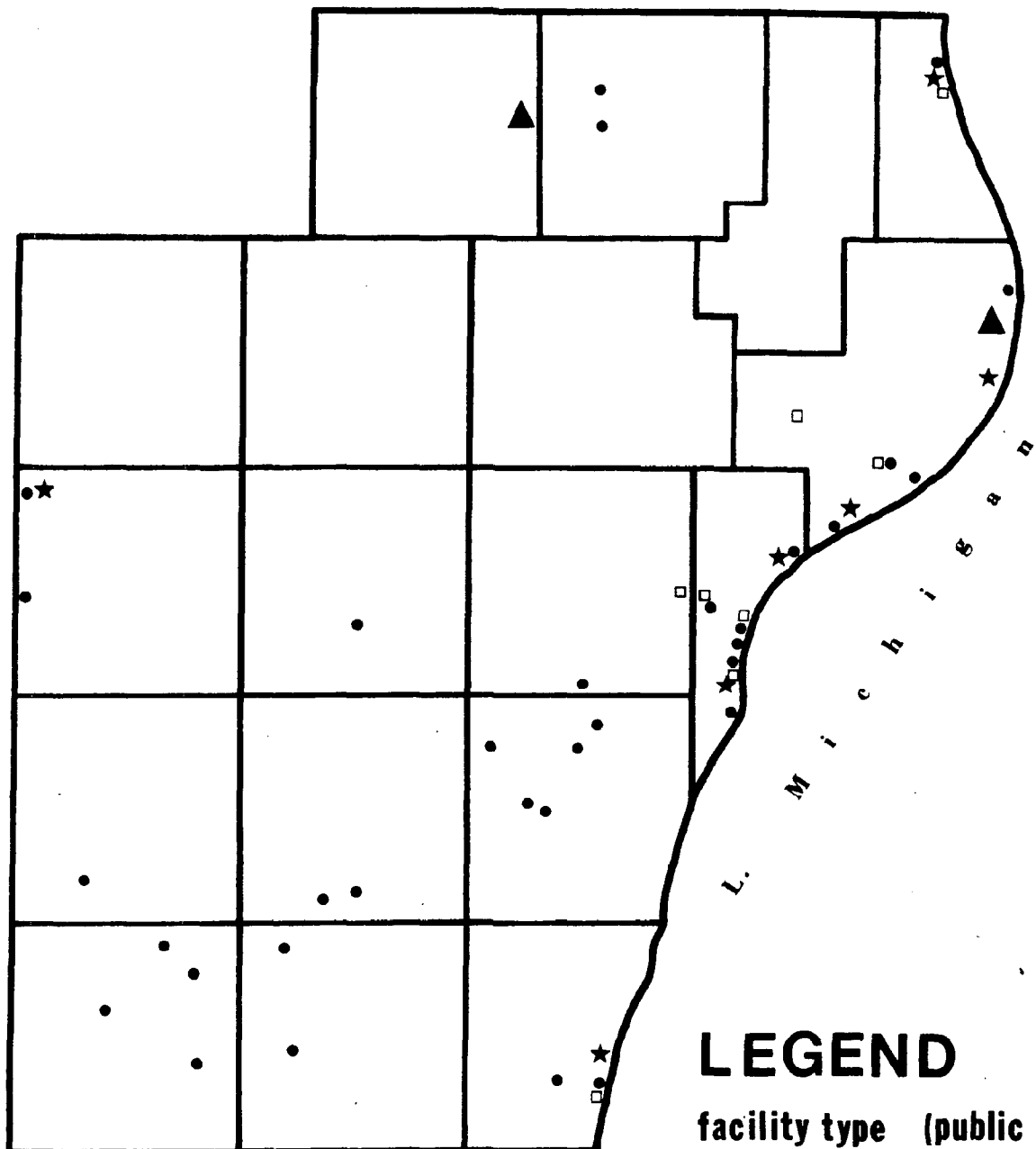
□ boating

• fishing

▲ camping



# MANITOWOC CO.



## LEGEND

facility type (public only)

★ swimming

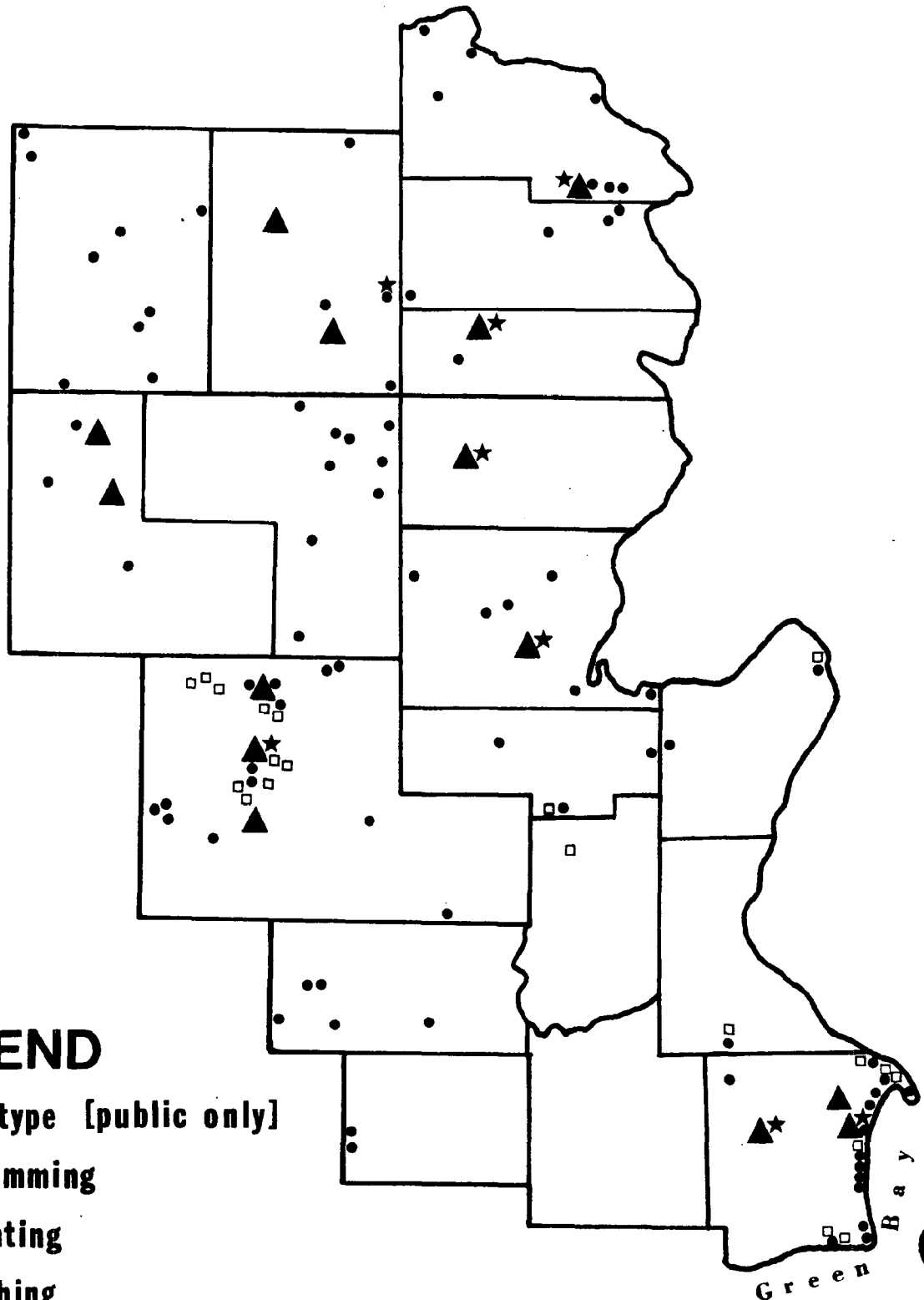
□ boating

• fishing

▲ camping



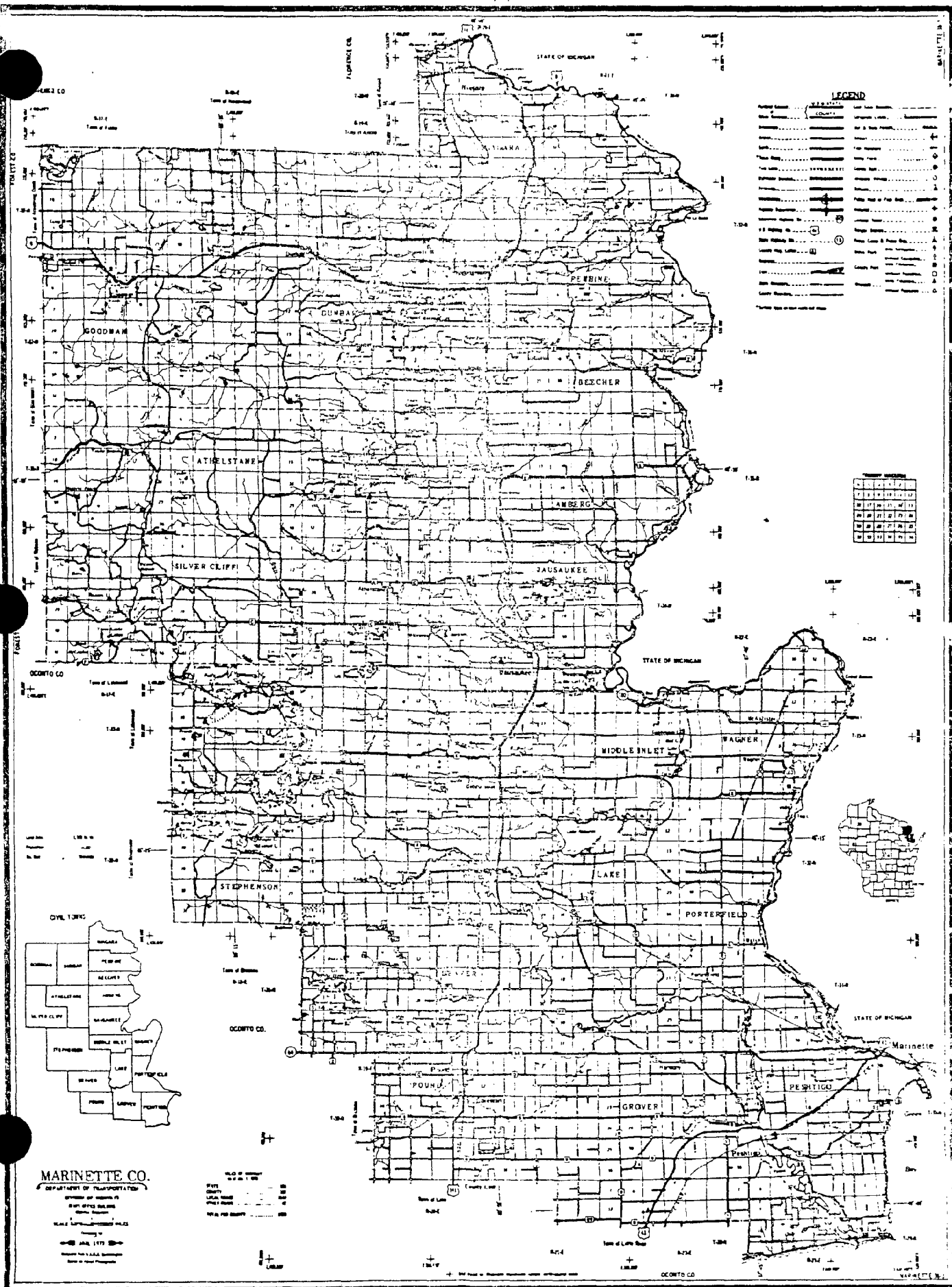
# MARINETTE CO.



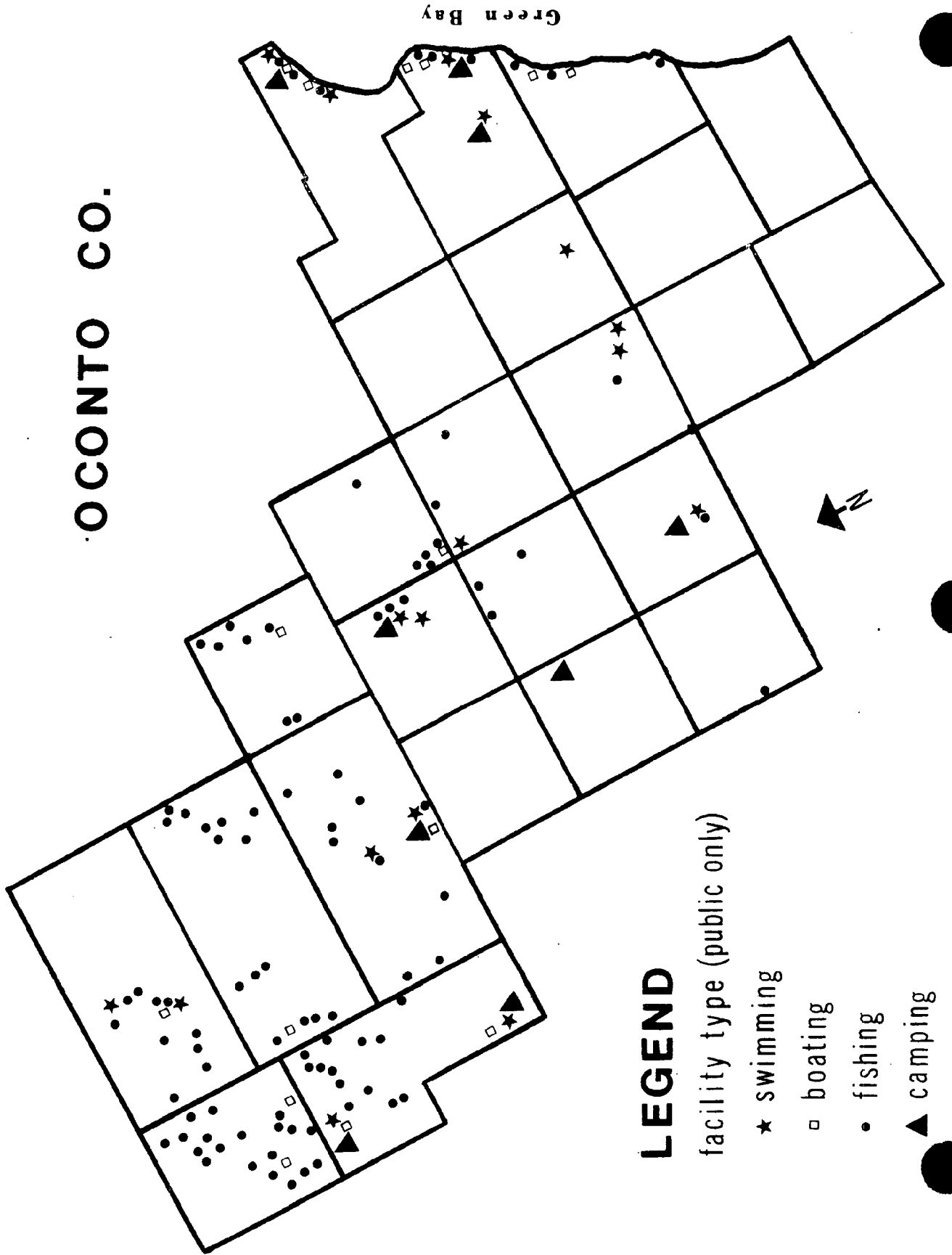
## LEGEND

facility type [public only]

- ★ swimming
- boating
- fishing
- ▲ camping



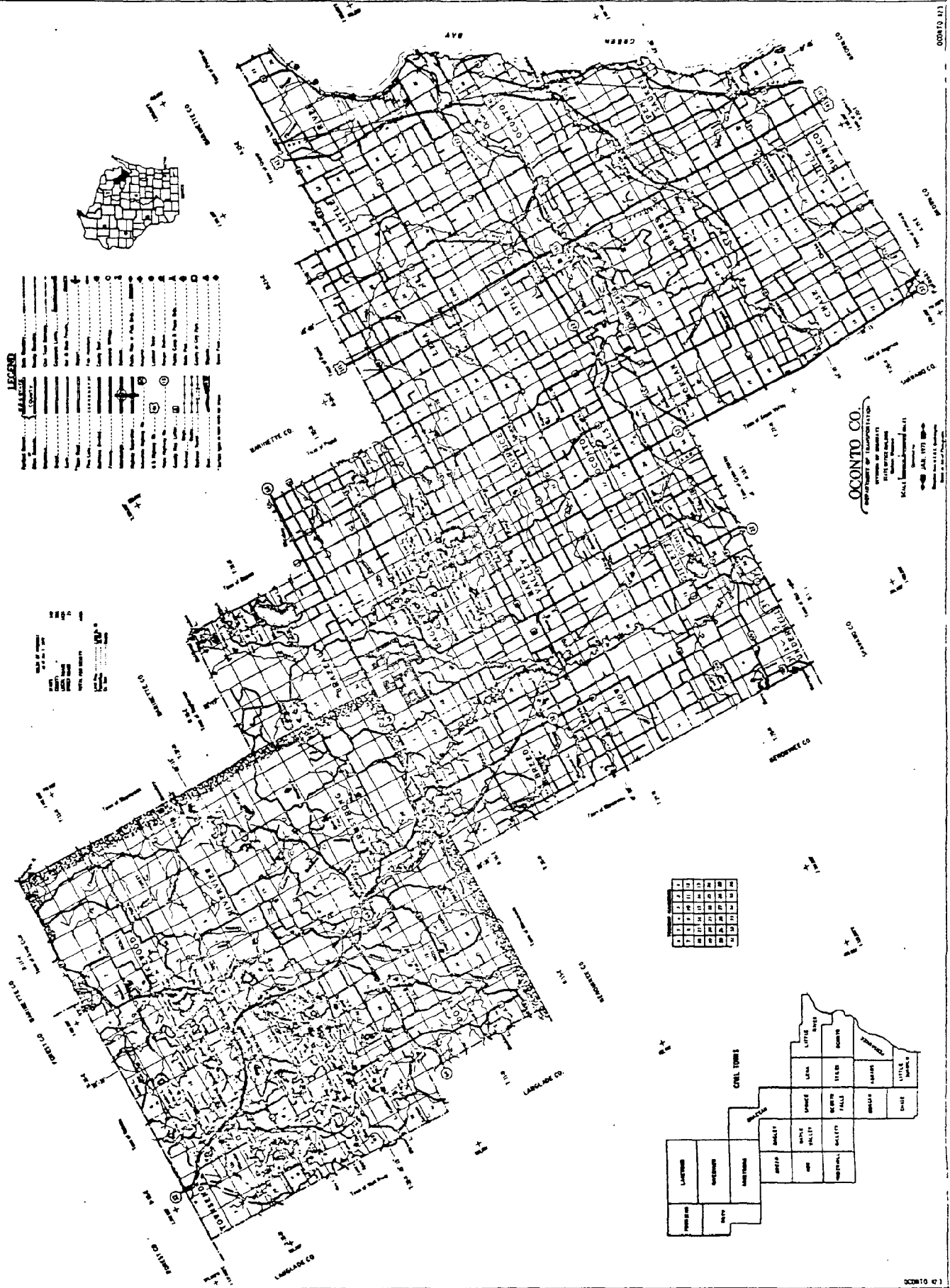
# OCONTO CO.



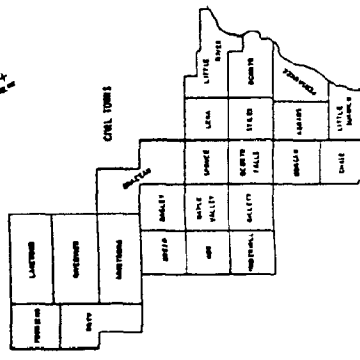
## LEGEND

facility type (public only)

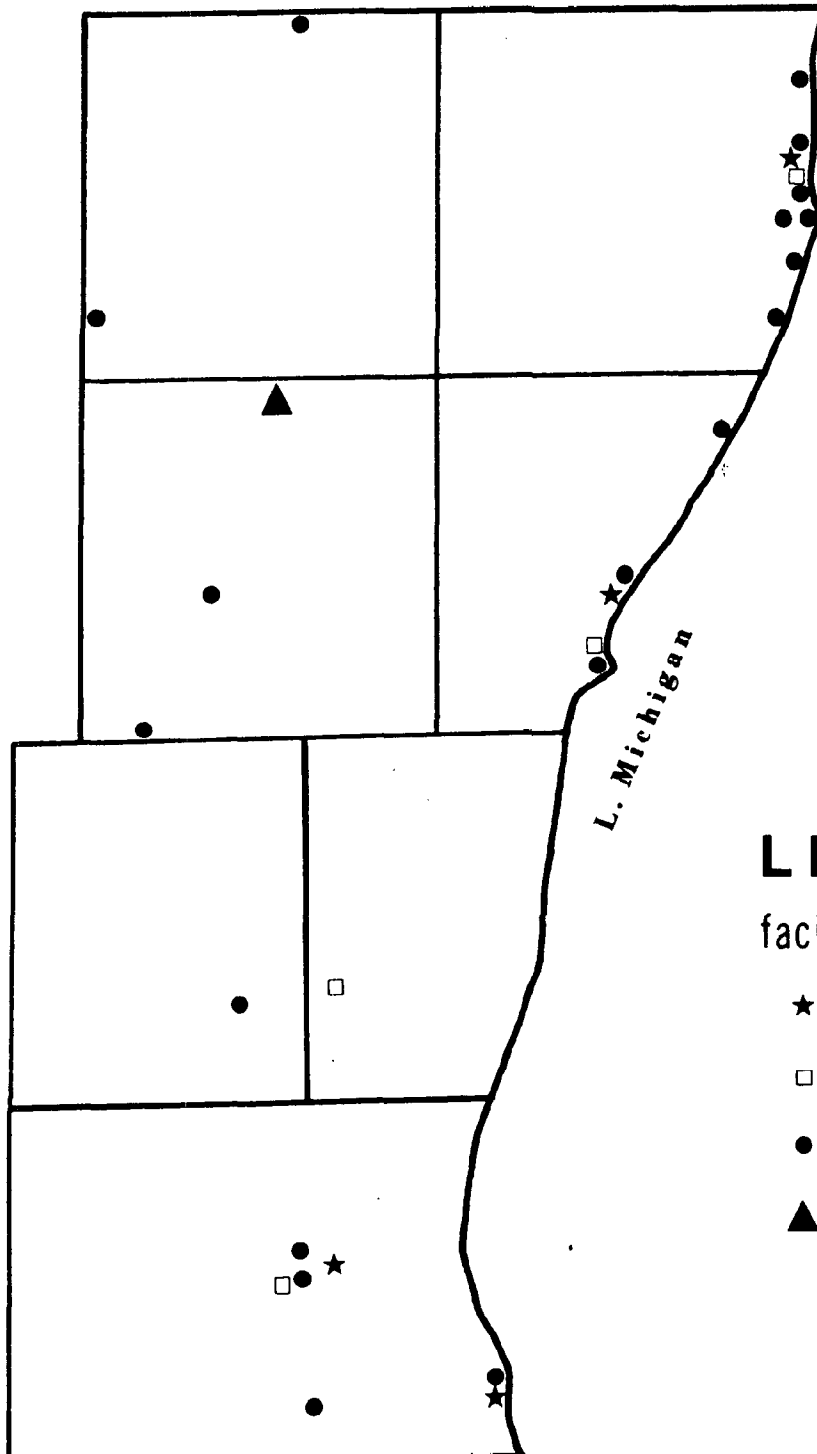
- ★ swimming
- ◻ boating
- fishing
- ▲ camping



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



# OZAUKEE CO.



## LEGEND

facility type (public only)

★ swimming

□ boating

• fishing

▲ camping

## LEGEND

- Civil Town Boundary.....
- Corporate Limits.....
- Nat. & State Forests.....
- Airport.....
- Fish Hatchery.....
- Game Farm.....
- County Seat.....
- Unincorp. village.....
- Schools.....
- Public Hunt or Fish Grds.....
- Hospital.....
- Lookout Tower.....
- Ranger Station.....
- Public Camp & Picnic Grds.....
- State Park.....
- County Park.....
- Wayside.....
- Portland Cement.....
- Bitum Concrete.....
- Bituminous.....
- Gravel.....
- Earth.....
- \*New Road.....
- Fire Lane.....
- Multilane Divided.....
- Freeway.....
- Interchange.....
- Highway Separation.....
- Interstate Highway No.....
- U.S. Highway No.....
- State Highway No.....
- County Hwy. Letter.....
- Railroad.....
- Dam.....
- State Boundary.....
- County Boundary.....

\*Surface types on town roads not shown  
MILES OF HIGHWAY  
as of Jan. 1, 1972

STATE..... 95  
COUNTY..... 120  
LOCAL ROADS..... 498  
OTHER ROADS..... 1  
TOTAL FOR COUNTY..... 718

Land Area..... 235 Sq. Mi.  
Population..... 54,308  
Co. Seat..... Port Washington

## OZAUKEE CO.

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

STATE OFFICE BUILDING

Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for

JAN. 1973

Compiled from U.S.G.S. Quadrangles

Based on Aerial Photographs

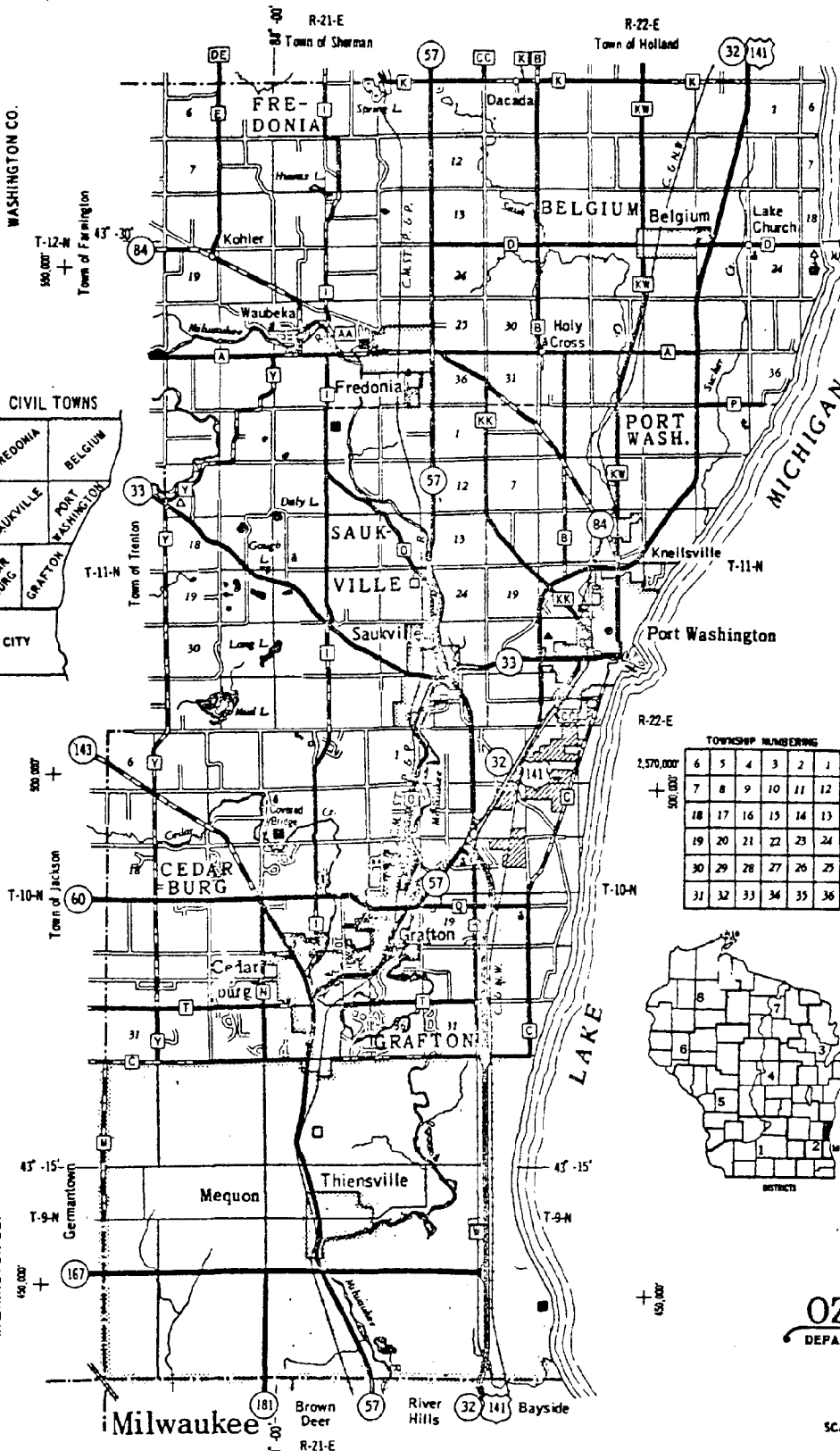
OZAUKEE 45-2

OZAUKEE 45-2

WASHINGTON CO.

SHEBOYGAN CO.

SHEBOYGAN CO.



Milwaukee

MILWAUKEE CO.

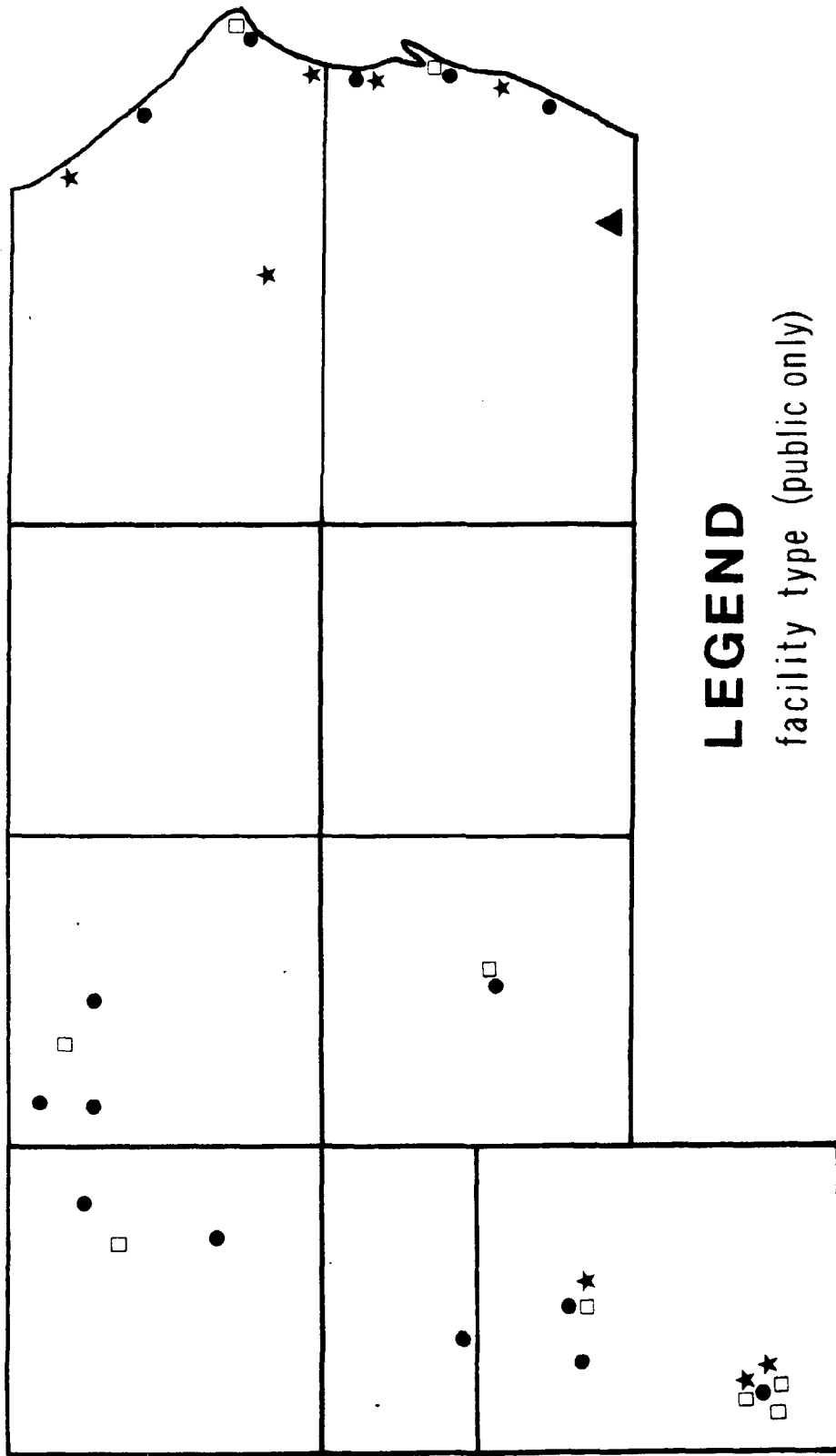
MILWAUKEE CO.

+ Grid based on Wisconsin coordinate system, south zone

+ 2,570,000 E

+ 2,510,000 E

# RACINE CO.



## LEGEND

facility type (public only)

★ swimming

□ boating

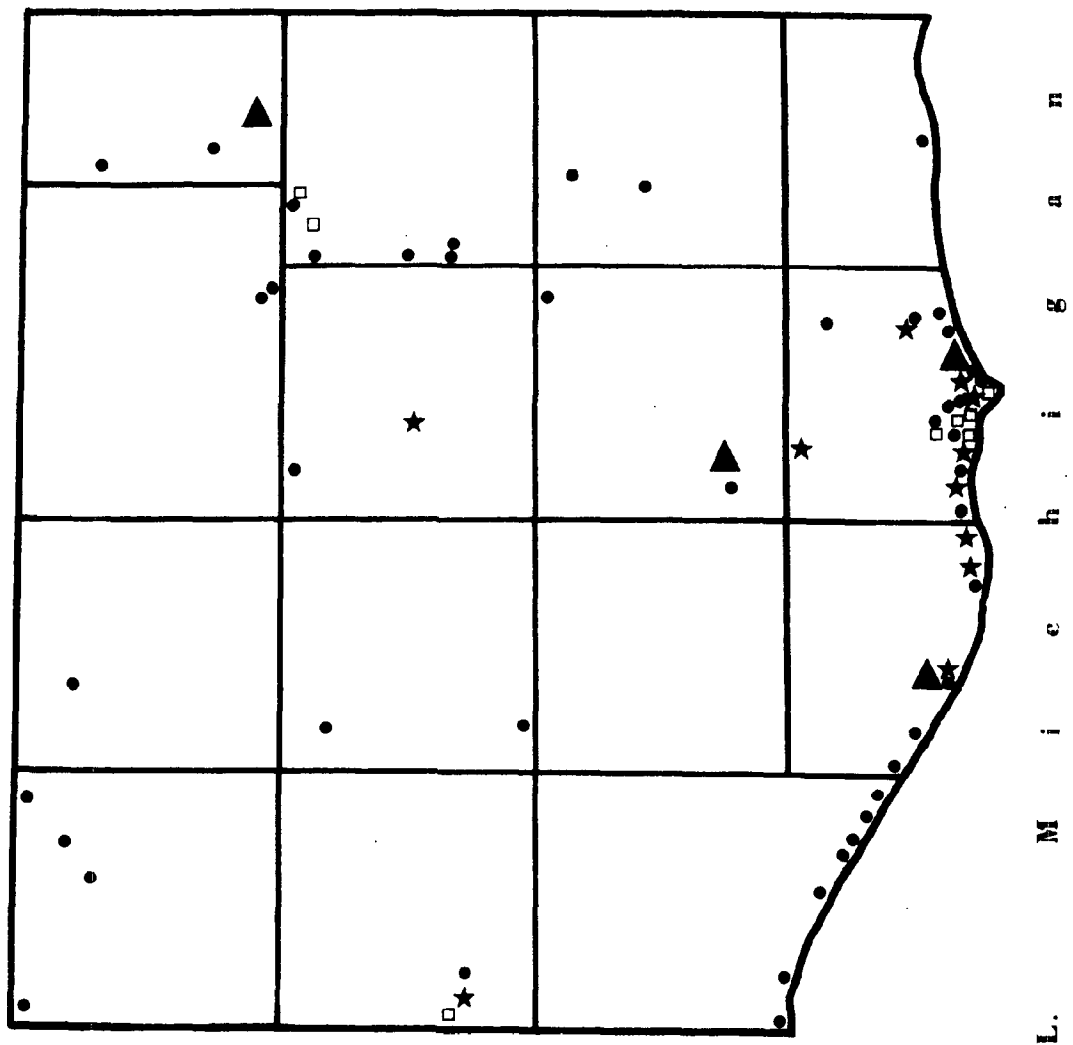
• fishing

▲ camping

L. M i c h i g a n



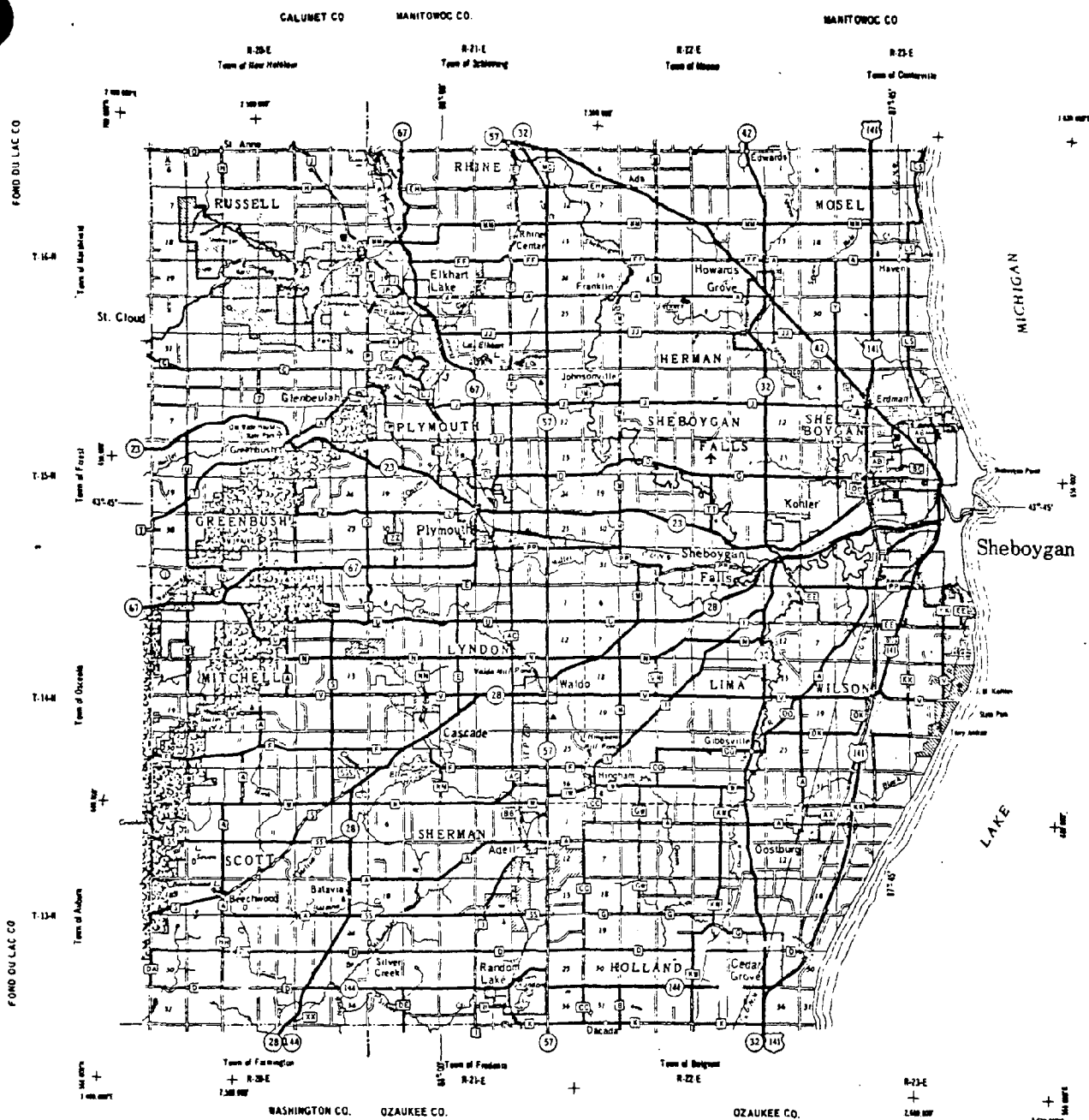
# SHEBOYGAN CO.



## LEGEND

facility type (public only)

- ★ swimming
- boating
- fishing
- ▲ camping



## LEGEND

- |                      |                            |                            |                            |
|----------------------|----------------------------|----------------------------|----------------------------|
| Portland Canal       | U.S. STATE                 | Coastal Town Boundary      | Coastal Town Boundary      |
| State Capital        | COUNTY                     | County Line                | County Line                |
| Interstate           | State & State Forest       | State Forest               | State Forest               |
| State                | Airport                    | Airport                    | Airport                    |
| Local                | Fish Hatchery              | Fish Hatchery              | Fish Hatchery              |
| Trunk Road           | Game Farm                  | Game Farm                  | Game Farm                  |
| Fire Lane            | County Seat                | County Seat                | County Seat                |
| Interstate Divided   | University Village         | University Village         | University Village         |
| Interchange          | Suburb                     | Suburb                     | Suburb                     |
| Hospital             | Public Hall or Fish Grille | Public Hall or Fish Grille | Public Hall or Fish Grille |
| Highway Construction | Harbor                     | Harbor                     | Harbor                     |
| Interstate Highway   | Local Town                 | Local Town                 | Local Town                 |
| U.S. Highway         | Ranger Station             | Ranger Station             | Ranger Station             |
| State Highway        | Public Camp & Public Site  | Public Camp & Public Site  | Public Camp & Public Site  |
| County Highway       | State Park                 | State Park                 | State Park                 |
| Road                 | County Park                | County Park                | County Park                |
| State Boundary       | Waypoint                   | Waypoint                   | Waypoint                   |
| County Boundary      | Waterway                   | Waterway                   | Waterway                   |
|                      | W. School For Boys         | W. School For Boys         | W. School For Boys         |



POPULATION (1970)

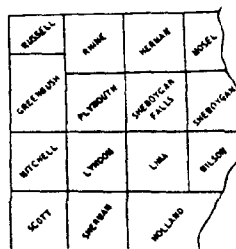
6	9	9	2	1
7	8	9	10	11
12	13	14	15	16
17	18	19	20	21
22	23	24	25	26
27	28	29	30	31
32	33	34	35	36

Land Area: 56 sq. mi.  
Population: 28,548  
Co. Seat: Sheboygan

MILES OF HIGHWAY  
as of Jan. 1, 1977

STATE	120
COUNTY	147
LOCAL ROADS	128
OTHER ROADS	11
TOTAL FOR COUNTY	151

## CIVIL TOWNS



## SHEBOYGAN CO.

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

STATE OFFICE BUILDING

Indian Street

SCALE 1" = 1 MILE

CORRECTED TO

JAN. 1977

Compiled from U.S.G.S. Contour Map

Based on Aerial Photograph

SECTION TWO

ECONOMIC BENEFITS OF RECREATION IN  
THE COASTAL COUNTIES

Project Investigator: Ray Mueller

PREFACE

The recreation industry economic impact study of the Coastal Zone is primarily geared to analyzing business trends and sales in the Coastal Zone counties. Answers to basic questions underlying the project will provide information about future direction and needs of the Coastal Zone recreation industry. In reviewing total economic impact, the study must correlate the volumes of business with people and the types and mixes of businesses generating the sales. These relationships can then be used to develop the positive side of the recreation-tourism industry in terms of economic importance. Conversely, the data can also suggest information on anticipated problems relating to nonresident tourism-recreation use.

This study develops information to provide a sound basis for judging the positive economic aspects of recreation. With sound basic information, a review of the negative aspects associated with increasing and fluctuating numbers of nonresidents and the methods and/or facilities used in accommodating them can be reviewed.

The basic questions underlying the recreation economic impact study are:

- 1) What do private and public recreation contribute to the business communities of the coastal area and how important are these contributions to the region and the state?
- 2) What is the composition of recreation facilities in the Coastal Zone area?

## INTRODUCTION

The intent of this phase of the Recreation Economic Impact Study is to estimate the economic impact of the recreation industry in the coastal zone counties.

This study explores the use of data collected by public offices as a base to use in developing information on recreation tourism. Emphasis is placed on developing a system that can be used to interpret the data as well as offer the opportunity to provide current information on business sales in selected industries. The preliminary study uses gross business sales data from the Wisconsin Department of Revenue. Sales data are available from 1970 through 1974 as monthly sales by county. The second year study will include sales information from 1975.

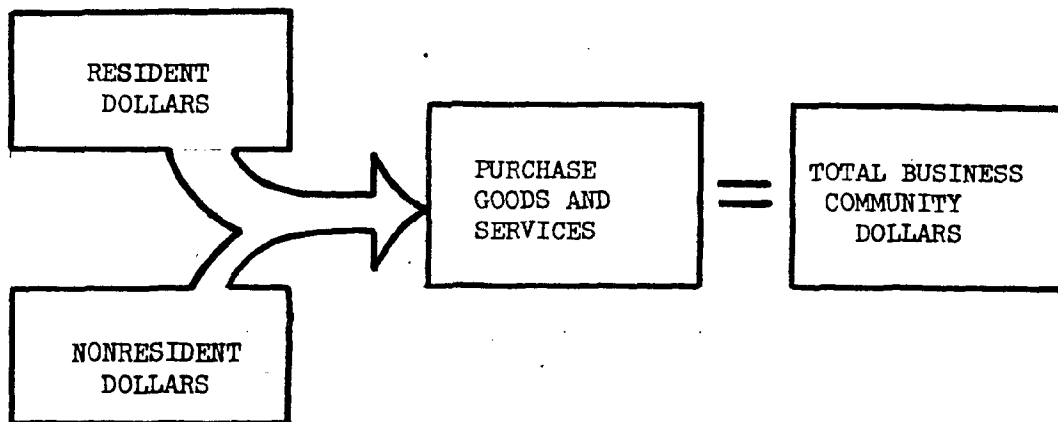
Several approaches and use of the business data are being analyzed. In this report the business sales data and interpretations are presented as examples for reviewing monthly gross business sales.

## STUDY METHODOLOGY

Spending in business occurs from both residents and nonresident visitors. At the state level, a nonresident is someone from outside of Wisconsin. At the county level, a nonresident is someone from outside of the county. Resident needs are primarily geared to normal living expenses for food, shelter, clothing and other necessities. Part of the resident income also goes to vacations and recreation.

## PLATE 1

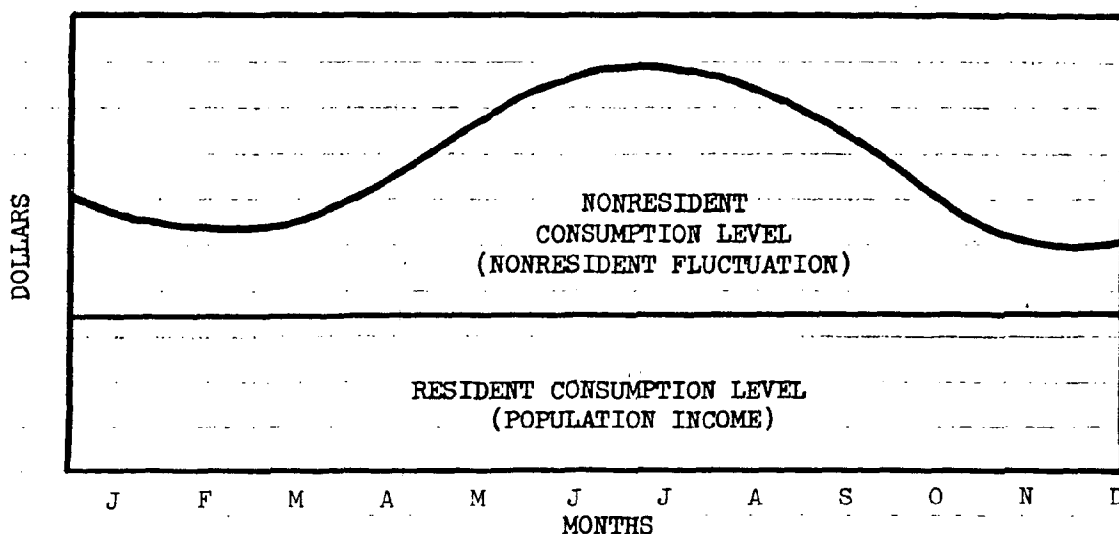
SPENDING BY RESIDENT AND NONRESIDENT  
MAKE UP THE TOTAL BUSINESS DOLLARS



Resident consumption is normally geared closely to resident population and income levels. Purchases of food, clothing, beverages, gasoline and other items are geared to identifiable levels of consumption and expected to remain relatively constant. The nonresident also needs food, shelter and other items as well as spends money for recreation and leisure activities while on vacation. Volumes of business sales attributed to nonresidents are expected to fluctuate in relation to increases or decreases in activity.

## PLATE 2

ANTICIPATED RESIDENT,  
NONRESIDENT CONSUMPTION PATTERNS



This study analyzes the monthly fluctuation of selected business sales and estimates are made on nonresident activity. Nonresident activity levels thus derived will be subjected to further analysis, by either surveys or through detailed analysis of other business-related data to establish the activity and sales attributed to the tourist and recreationer. Resident activity levels in recreation are anticipated to mirror the nonresident patterns.

#### BUSINESS SALES AS A DATA BASE FOR RECREATION IMPACT

While this study looks at business sales the relationship of traffic movement and volume, employment trends, family income levels and spending levels and many other types of data will be analyzed and the relationships of all activities reviewed. However the most critical phase of the economic study is to generate a sound business sales data base for each county.

Wisconsin's Department of Revenue provides gross business sales information for each county, by Standard Industrial Classification (S.I.C.) code. This information permits an examination of each county's monthly sales patterns. An S.I.C. code number denotes similar businesses. S.I.C. code 70 for example includes lodging facilities such as hotels, motels, campgrounds, and rooming houses. The retail and service sales by S.I.C. code being reviewed in this study are covered in Plate 3.

## PLATE 3

INDUSTRIES BEING REVIEWED IN  
THE RECREATION ECONOMIC STUDY

STANDARD INDUSTRIAL CLASSIFICATION CODE			GROSS SALES ANTICIPATED DEGREE OF RECREATION TOURISM SENSITIVITY		
			HIGH	MEDIUM	LOW
1	52	Building Materials		x	
2		Farm Equipment			x
3	53	General Merchandise		x	
4	54	Food Stores	x		
5	55	Auto Dealers			x
6		Gasoline Service Stations	x		
7	56	Apparel Stores		x	
8		Accessory Stores			x
9	57	Furniture-Home Furnishings Stores			x
10	58	Eating & Drinking Places	x		
11	59	Miscellaneous Retail Stores	x		
12	70	Hotels & Other Lodging Places	x		
13	72	Personal Services		x	
14	73	Miscellaneous Business Services			x
15	75	Auto Repair, Services & Garages		x	
16	78	Motion Pictures		x	
17	79	Amusement & Recreation Services	x		

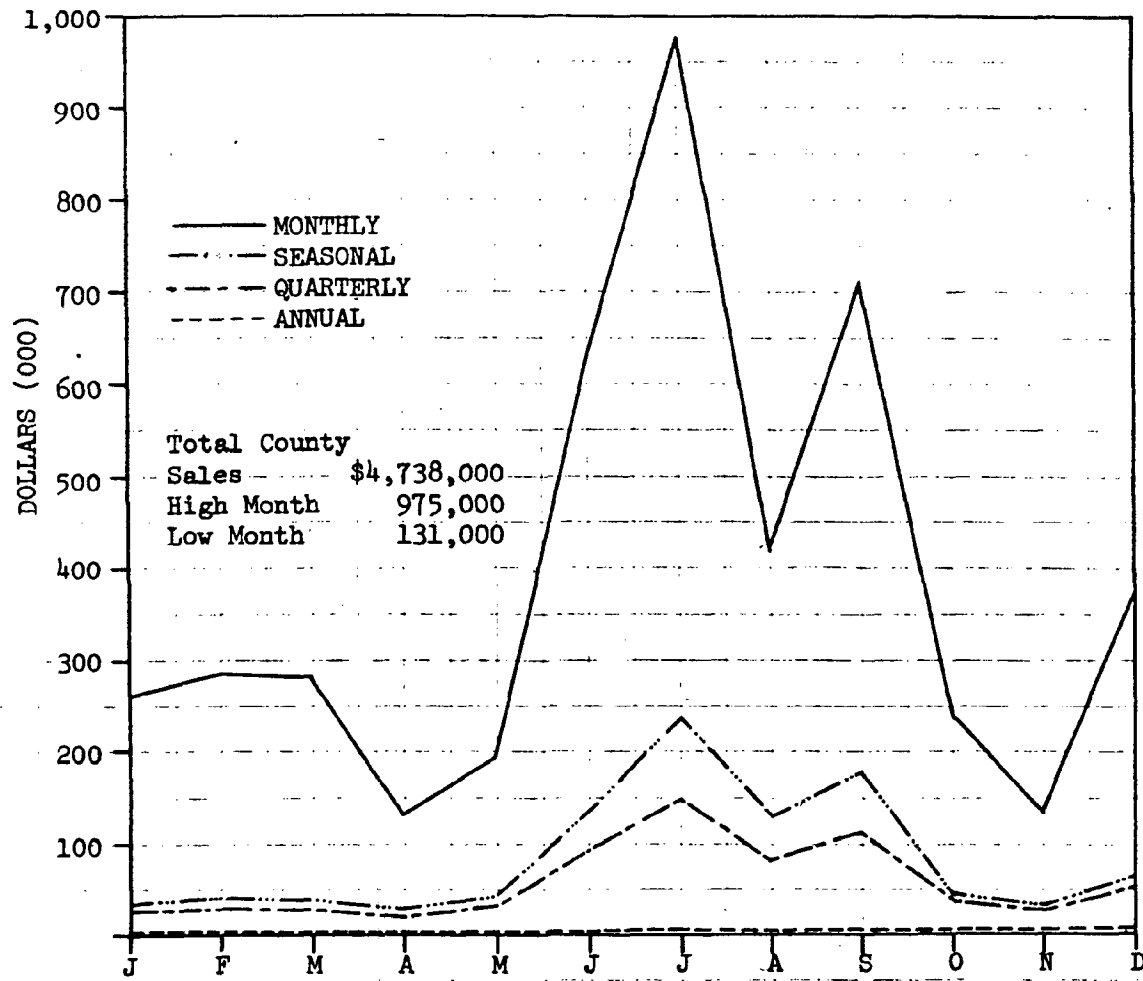
Some business categories will reflect tourism recreation activity more so than other business sales, and some business sales will be more sensitive to nonresident use than others. Lodging, eating and drinking, gasoline and food sales will be sensitive to nonresident activity. Amusement sales, along with public land usage and license sales, levels are expected to reflect recreation activity levels. Of course, business sales, trends and volumes will provide only partial information. This data must be combined with other information to create a total picture of recreation impact. Lodging sales for example will provide only information on the tax-paying private businesses. The total lodging sector covers not only private lodging but also the second or seasonal home, public campgrounds and other forms of lodging. This first year study reviews only the business sales relating to lodging. The total

lodging industry will be explored and analyzed after the total base business data have been organized and analyzed. The use of the business data and combinations of business sales attributed to nonresident activity should identify indicators for estimating total lodging use, second home, campground, and hotels, motels and resorts.

While the gross business sales by county will be analyzed by month, the study cannot yet include such an analysis of the 15 counties in the report because of the limited time for producing the first report and the need to develop additional systems for complete analysis of the data.

Plate 4 illustrates the form in which the gross business data being used in the study are available:

## PLATE 4

1974 BAYFIELD COUNTY LODGING SALES  
BY BUSINESS PAYMENT SCHEDULE

The data in Plate 4 covers lodging sales in Bayfield County (S.I.C. 70). Normally businesses must pay taxes to the state on a set schedule--annually, quarterly, monthly, or seasonally. The income levels of the business usually dictate the schedule required. Plate 4 shows the monthly sales patterns of lodging sales by the four payment schedules.

The data in all sales classifications can be broken into further detail. S.I.C. 70 for example is a two-digit number and groups together all the lodging sales under that classification. Four-digit numbers also can be used--S.I.C. 70 can be defined in more detail to reflect S.I.C. 7010 which covers hotels, motels and tourist courts and S.I.C. 7030 which indicates campgrounds. The four-digit system, available in all the S.I.C. codes areas, is anticipated to be used in the detailed analysis of the counties.

#### REGIONAL GROSS BUSINESS SALES

For simplification in the first year report, data on business sales will be made available primarily on gross business sales by region. Detailed county and state models will be used to explore in greater depth sales and the relationship to nonresident levels of consumption.

Plate 5 identifies the regional grouping of counties for the report.

## PLATE 5

## COUNTIES INCLUDED IN THE COASTAL ZONE STUDY

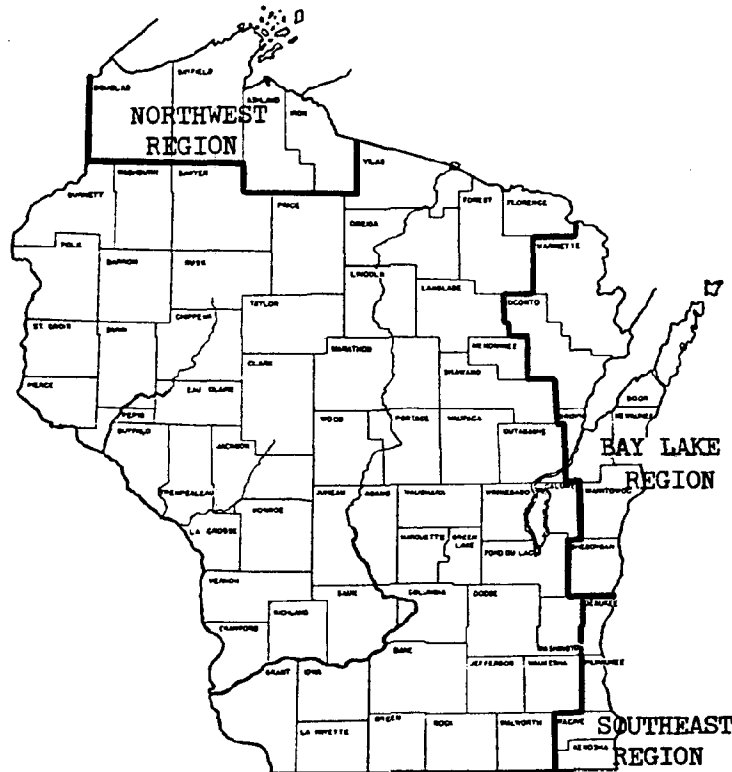


Plate 6 includes the total sales by county for 1974 being included in the study.

Gross business sales data, plate 6, is grouped into four classifications:

- (1) Primary recreation sensitive, (2) secondary recreation sensitive,
- (3) recreation activity and (4) other retail sales.

Primary recreation sensitive business sales includes lodging sales (camp-ground, resort, hotel, motel and other lodging places) and eating and drinking places sales. Over 58 percent of the tourists are estimated to use commercial lodging facilities and expected to influence eating and drinking sales. Secondary recreation sensitive sales include auto related (gasoline and repair) and grocery food sales. Over 87 percent of Wisconsin

tourists travel by auto or pickup and over 100 thousand second homes are located in the state. Secondary sales should provide information for analyzing these two areas. Recreation activity includes golf, ski, recreation club and other activity sales that should provide information on resident and nonresident activity levels. Other retail sales include lumber, drug, liquor, clothing, general merchandise and other sales areas. All of the sales areas are expected to follow the pattern of sales set by the primary recreation sensitive sales category.

Plate 6 illustrates the sales by SIC code in each county in the coastal zone area and relates the coastal zone area to the State. While it is important to consider total economic productivity of each county it is also highly important to consider the importance of each classification of sales to the total business community of each county. Any action that would affect the emphasis of one segment of the business community could trigger a change in other businesses in the business community. Therefore, consideration of the importance of each segment of the business community and its relationship to other business sales and services of the business community is vital.

#### A COMPARISON OF REGIONAL RECREATION TOURISM SENSITIVE SALES

Establishing the effects of nonresident spending on the total business community is the first step in analyzing the base data. This step will lead to identifying nonresident and resident tourism recreation spending levels for each county. Nonresident recreation activity will also reflect sales relating to resident use. In popular recreation areas the

BUSINESS SALES BY SELECTED S.I.C. CODES, 1974, BY COASTAL COUNTIES AND REGIONS (000) DOLLARS \*

	Primary Recreation			Secondary Recreation				Rec. Activity		Other Retail Sales							TOTAL (000)
	58 EAT & DR	70 LODGE		54 FOOD	55 AUTO	59 MISC	75 AUTO	78 MOVIES	79 AMUSE	52 BLDG	53 GEN	56 APPAREL	57 FURN	72 PERSONAL	73 MISC		
NORTHWEST																	
ASHLAND	7,991	510		5,374	11,810	4,357	201	109	658	5,069	6,798	1,102	1,703	663	31		46,376
BAYFIELD	3,409	4,743		5,313	3,244	2,334	425	9	966	5,584	2,586	200	17	62	931		29,903
DOUGLAS	18,592	3,559		16,799	88,247	15,460	1,112	43	969	10,121	8,321	3,057	2,123	1,334	323		170,060
IRON	3,328	739		3,124	2,935	1,438	134	--	282	1,726	926	143	24	169	--		14,968
TOTAL	33,400	9,551		30,610	106,236	23,589	2,872	161	2,875	22,500	18,631	4,502	3,867	2,228	1,285		261,307
BAY LAKE																	
BROWN	40,440	7,869		56,769	110,691	92,682	32,828	3,474	8,264	54,765	75,147	16,373	21,384	11,698	6,176		538,860
DOOR	8,480	6,250		14,067	14,369	7,984	2,322	121	1,141	6,929	7,048	1,372	1,361	604	789		73,037
KEWAUNEE	3,172	1,567		7,690	12,217	3,807	1,495	137	716	11,144	4,876	743	1,366	364	400		49,694
MARINOWOC	18,543	2,591		52,808	41,695	21,742	4,079	416	1,862	28,481	25,017	7,746	7,119	1,934	2,439		216,472
MARINETTE	10,652	3,145		24,197	21,973	7,073	963	125	1,071	13,646	9,461	1,628	2,258	967	164		97,323
OCONTO	6,735	911		16,055	10,828	8,957	767	16	703	20,775	2,809	314	946	143	168		70,127
SHEBOYGAN	28,801	3,021		56,805	52,166	56,863	4,421	537	3,595	33,583	68,146	6,095	14,042	3,078	2,940		334,093
TOTAL	116,823	25,354		228,391	263,939	199,108	47,075	4,826	17,352	169,323	192,804	34,271	48,476	18,788	13,076		1,379,606
SOUTHEAST																	
KENOSHA	43,268	3,841		65,842	56,146	23,111	6,531	352	6,047	14,583	13,059	8,019	14,421	3,792	2,343		261,655
MILWAUKEE	329,043	41,705		661,798	903,332	610,434	132,575	14,739	46,494	254,061	797,600	129,180	257,279	53,948	255,915		4,479,103
OZAUKEE	13,965	1,298		32,717	37,696	18,539	2,357	211	3,711	32,057	3,734	5,208	5,530	1,403	3,931		162,357
RACINE	39,493	4,117		113,710	93,123	46,177	9,684	316	6,034	50,314	41,056	16,569	24,443	4,685	212,199		661,920
TOTAL	429,769	50,961		874,067	1,090,597	698,261	151,147	15,618	62,286	342,015	855,449	158,976	301,673	63,828	474,388		5,565,035
COASTAL ZONE(000)	575,992	85,868		1,133,068	1,460,772	920,958	200,094	20,605	82,513	533,838	1,066,884	197,749	354,016	84,844	490,034		7,205,948
STATE (000)	1,336,883	248,816		2,860,656	3,647,825	2,186,643	405,925	39,868	188,027	1,765,986	2,232,247	417,049	695,051	197,609	700,850		16,923,435

\*This information is based on 1974 gross business sales from the Wisconsin Department of Revenue. Further refinement of the totals is expected to occur in some county totals due to adjustments because of consolidated filers( a business that has stores in several counties but reports all sales from a single office).

recreation sensitive sales will greatly fluctuate because of increased or decreased consumption by the nonresident.

Plate 7 relates the importance of the four classifications of sales to the total business communities of each region and compares the regions to the state.

PLATE 7

TOTAL REGIONAL SALES - 1974 AS A PER CENT OF  
SALES BY RECREATION SENSITIVITY CLASSIFICATION

	I Primary Recreation Sensitive	II Secondary Recreation Sensitive	III Recreation Activity Sensitive	IV Retail Sales Other
NORTHWEST	16.4%	62.1%	1.2%	20.3%
BAY LAKE	10.3%	53.5%	1.6%	34.5%
SOUTHEAST	8.6%	50.6%	1.4%	39.5%
COASTAL ZONE	9.2%	51.6%	1.4%	37.8%
STATE	9.4%	53.8%	1.3%	35.5%

Primary recreation sensitive sales appear high in the Northwest region, with 16.4% of all business sales. The Southeast region level accounts for 8.6% of total community business activity. This sales classification compared to all business activity is about half as important to the total business community in the Southeast as it is to the Northwest. However, in primary recreation sensitive sales, total sales in the Southeast are \$477 million compared to \$43 million in the Northwest.

Plate 7 also compares the importance of each region to the state.

Primary recreation sensitive sales on the state level represents 9.4% of total state business sales. The Northwest and Bay Lake regions surpass the state average while the Southeast falls below the state average.

But in comparing total volumes of sales the state total is approximately

\$1,585 million of sales compared to \$477 million in the Southeast region.

Secondary recreation sensitive sales also tend to correlate with the primary recreation sensitive sales. In 1974, secondary recreation sensitive sales made up 62.1% of the Northwest's and 50.6% of the Southeast's sales. Here again the Southeast region surpassed the Northwest region in total sales by \$2,814 million to \$163 million.

PRIMARY RECREATION SENSITIVE BUSINESS SALES AT THE REGIONAL LEVEL

A look at the total annual sales in each classification of business sales establishes the relative importance of recreation sensitive sales to the total business community. Fluctuations in sales are expected to mirror nonresident activity. These fluctuations should reflect in total sales of many businesses. Plate 8 illustrates the seasonal sales percentages in the regions.

PLATE 8  
PRIMARY RECREATION SENSITIVE SALES AS PERCENT  
OF SALES BY QUARTER OF THE YEAR 1974

	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
	J	F	M	A	M	J	J	A	S	O	N	D
NORTHWEST	20%			24%			32%			24%		
BAY LAKE	21.8%			22.6%			28.8%			26.8%		
SOUTHEAST	23%			25.1%			26.9%			25%		
COASTAL ZONE	22.0%			25%			28%			25%		

If every quarter were equally important, 25 percent of the sales would occur in each three-month period. Wisconsin, however has been known as a tourism recreation state for many years. During the third quarter all regions are above the average of 25 percent. The Coastal Zone averages 28 percent, the Northwest 32 percent, and the Southeast 26.9 percent. The first quarter in each region falls short of the reaching the 25 percent figure. Seasonality does seem to influence all regional recreation sensitive business. Some counties are expected to reflect greater seasonality in sales than the regions. Those having high recreation use are anticipated to be above the regional level.

A review of monthly patterns of primary recreation sensitive sales reveals a trend of use. Recreation sensitive sales in the regions over the five-year period from 1970 to 1974 have consistently grown. Plate 9 provides data on gross business sales in recreation sensitive sales for the five-year period.

## Plate 9

RECREATION SENSITIVE SALES - LODGING  
AND EATING AND DRINKING FOR  
COASTAL ZONE COUNTIES  
1970-1974 (000) Dollars

	1970	1971	1972	1973	1974
ASHLAND	4,511	5,360	5,221	6,556	8,501
BAYFIELD	3,890	4,286	4,857	6,317	8,232
DOUGLAS	16,109	16,177	20,360	22,240	22,151
IRON	2,876	3,035	3,305	3,619	4,067
TOTAL	27,386	28,858	33,743	38,732	42,961
BROWN	31,210	36,970	40,783	43,865	48,309
DOOR	9,292	10,077	10,961	12,984	14,730
KEWANEE	3,416	3,786	4,109	4,742	4,739
MANITOWOC	15,037	15,998	17,383	20,187	21,134
MARINETTE	8,533	9,227	10,171	11,103	13,797
OCONTO	5,051	5,382	5,882	7,050	7,646
SHEBOYGAN	15,458	18,568	22,093	28,577	31,822
TOTAL	87,997	100,008	111,382	128,508	142,177
KENOSHA	23,720	28,140	32,491	39,032	47,109
MILWAUKEE	252,227	274,865	305,492	334,814	370,748
OZAUKEE	8,890	10,275	11,103	13,537	15,263
RACINE	26,272	27,864	32,435	39,864	43,610
TOTAL	311,109	341,144	381,521	417,247	476,730
COASTAL AREA	426,492	470,010	526,646	584,487	661,868
STATE	982,476	1,076,116	1,201,329	1,440,889	1,585,699

Sales in all three coastal zone regions grew from 1970 to 1974. Sales in the Northwest region increased 57%, in the Bay Lake region 62% and in the Southeast region 53% during the five-year period. These figures are not adjusted for inflation during the five-year period, nor are the totals adjusted for changes in numbers of units recorded in the sales.

# COUNTY BUSINESS SALES ANALYZED

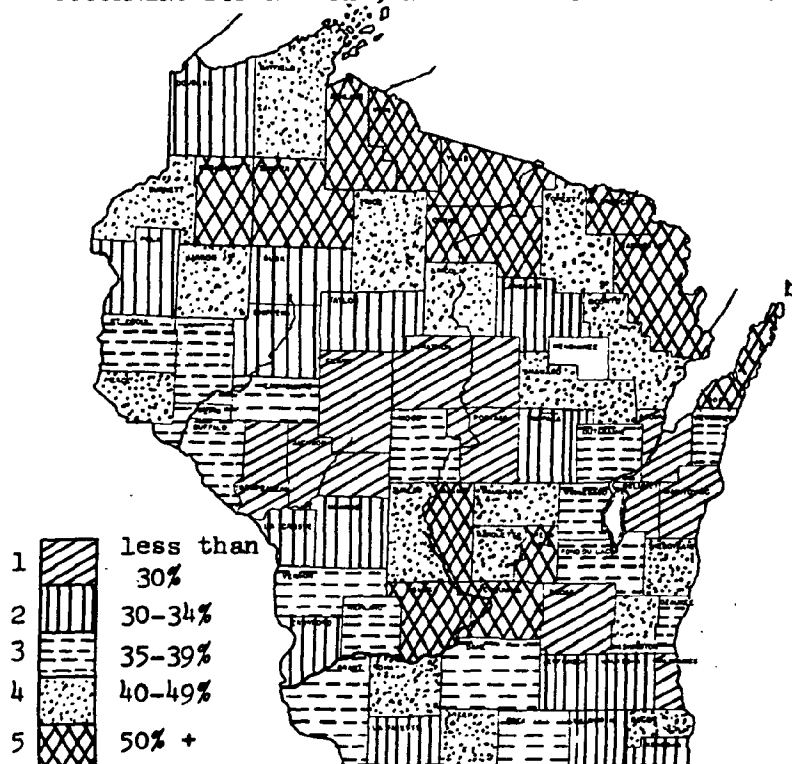
Monthly sales figures, classified by county will suggest specific information on peak sales periods. Lodging and food sales will probably be the most critical factor in total nonresident impact of tourism and recreation. Because nonresident visitors need lodging, lodging becomes the most critical industry in nonresident activity. Food sales, either by grocery and food stores or through eating and drinking places, are other important variables in nonresident activity in an area.

## LODGING AS AN INDICATOR TO NONRESIDENT ACTIVITY

Plate 10 includes information on 1972 lodging sales.

PLATE 10

LODGING SALES AS A PERCENT OF TOTAL SALES  
OCCURRING DURING JULY, AUGUST AND SEPTEMBER - 1972

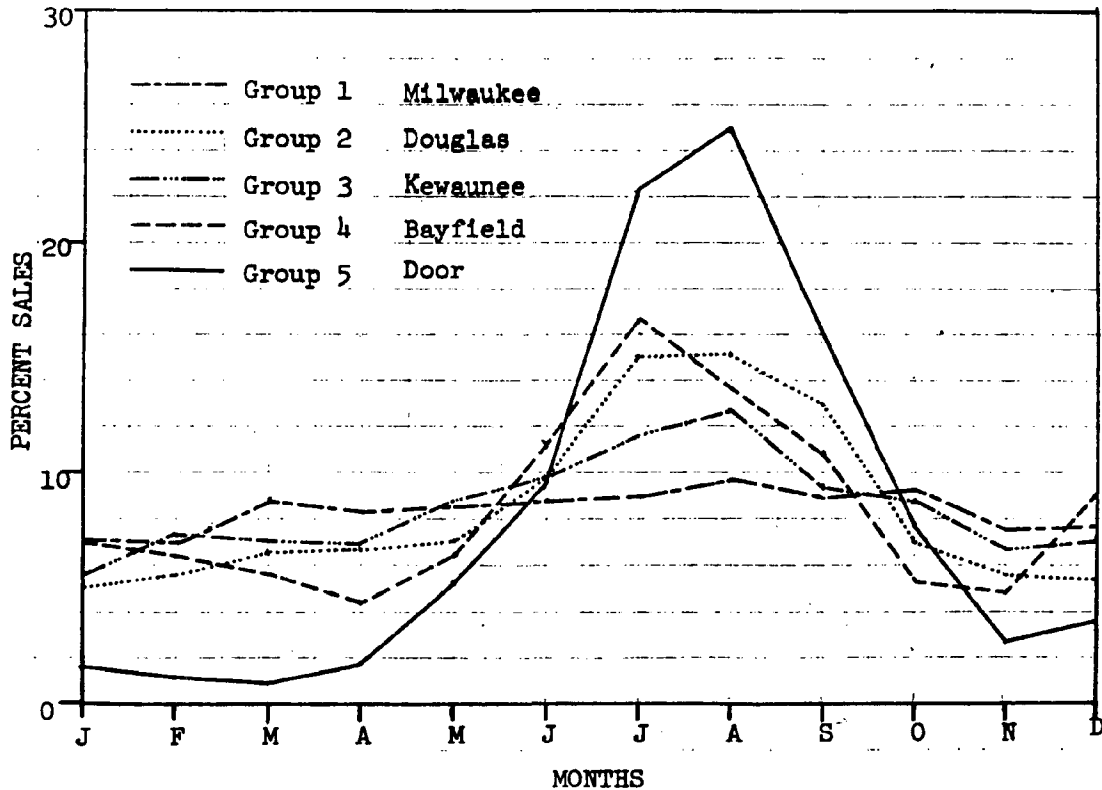


Lodging sales are reviewed on the basis of sales during the summer quarter, July, August, September, of the year. This type of analysis is possible for any quarter; summer was selected because the high impact in summer will offer the best opportunity for review of the greatest change in sales. The counties are grouped into five categories, from those with lodging sales of less than 30% during peak summer activity to those with over 50% of their sales during summer. Combining the information on business sales for lodging, eating and drinking, and food places should show seasonal home and public and private campground use patterns. Analyzing the business sales and the types of facilities included in the sales will clarify the impact of nonresident activity on the local business community. In counties of high summer lodging activity, the other business will probably reflect high sales. To further identify the monthly activity of lodging sales Plate 11 covers the monthly sales patterns of the five classifications of counties used in the lodging sales map.

The examples include Milwaukee, Douglas, Kewaunee, Bayfield, and Door Counties. Door County appears to respond most to the summer nonresident. In 1972 over 25% of the lodging business sales occurred during August. The difference between sales for the high month and the low month varied from 5% of the sales in March to 25% of sales in August. But for Milwaukee County, with a more stable situation, the monthly variations in sales percentages by month ranged from a low of 6.8% in January to a high 9.8% in August. Both the highly seasonal sensitive county and the stable sales county registered increase in lodging sales during summer. However, an accurate picture of the various sales in-

PLATE 11

COUNTY LODGING SALES -  
MONTHLY PROFILES CATEGORIES 1-5



formation such as lodging, requires an understanding of the mix of recreational opportunities in each situation. Milwaukee County will probably offer the recreation-tourist more in activities such as sporting events, theatres, unique public attractions, conventions, and other special events, along with some boating fishing and other outdoor activities. Door County will probably offer more outdoor recreation activities and the recreation vacation experiences. Better information and detailed analysis on the recreation opportunities in each county should identify sales generated by these activities and rationalize development.

Trends in lodging sales volumes are expected to influence eating and drinking and other sales areas.

Lodging and eating and drinking sales should be major indicators for estimating a major portion of the recreation-tourism population. While eating and drinking sales are expected to mirror lodging, food sales are expected to reflect the camper and second-home user.

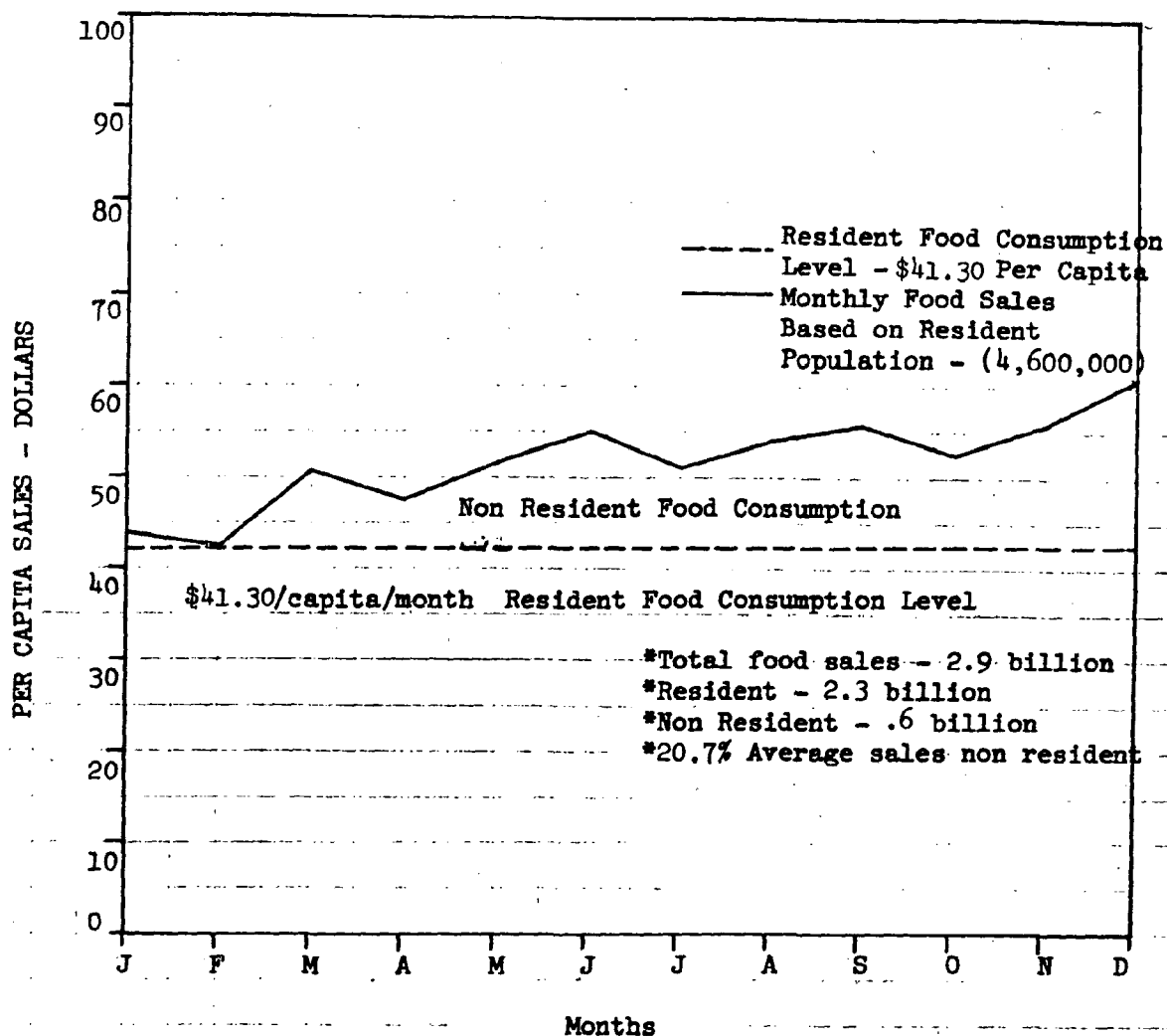
#### ESTIMATING NONRESIDENT FOOD SALES ACTIVITY

The problem of separating resident consumption from the nonresident consumption must be solved. Two possible methods of establishing resident and nonresident food consumption levels are being explored. One is to determine the income level of the residents and estimate spending in different areas for food, shelter, clothing and other necessities as well as spending by the resident for recreation at home and away from home. Once the resident levels of spending and consumption have been established, the totals are subtracted from the gross business sales of each county. Remaining sales, under the first method, are then attributed to nonresident spending. The second method and the one used along with part of method one for this report is the "low month of sales equals the resident level of consumption." Plate 12 illustrates this system.

February is the low month for consumption of food on the state level. During February an estimated 5% of sales can be attributed to nonresident activity. This method assumes that resident activity during February is the level of resident consumption for the year. All business activity above the low month level is attributed to nonresident activity. Estimated levels of consumption will be adjusted later for inflation and resident out-of-state travel.

PLATE 12

## ESTIMATED FOOD CONSUMPTION LEVEL FOR STATE RESIDENTS - 1974



The February consumption rate is derived by dividing 95% of the February state food sales by the number of state residents. This gives a monthly consumption figure of \$41.30 for food sales by residents. A family of five would then spend approximately \$200 per month on food in 1974. Non-resident out-of-state food consumption in 1974 is estimated to be 20.7% of all food sold in Wisconsin. Nonresident food consumption totaled by county may surpass the 20.7% figure, not only because of "out-of-state" users, but also because Wisconsin residents visiting another county will be treated as a nonresident to the county.

Food consumption by out-of-state nonresidents at the state level in the business classification of food stores, is estimated at \$600 million for 1974. This figure represents a resident equivalent consumption level of 1.2 million people based on resident food consumption levels.

The resident equivalent population derived from food sales represents only part of nonresident activity in the state. When analyzed by a similar method, eating and drinking sales, along with other sales categories, will provide additional information on nonresident activity in terms of resident equivalent populations.

Resident equivalent populations can be distributed by using low month sales figures for each county.

Plate 13 shows the food consumption for coastal zone counties.

## PLATE 13

FOOD SALES 1974--RESIDENT  
AND NONRESIDENT CONSUMPTION LEVELS\*

County	Pop. (000)	Total Food Sales (Dollars) (000)	Resident (Dollars) Cons. (000)	Non- Resident (Dollars) (000)	% Non- Resident	Annual Per Capita Resident Consump.
Ashland	16	5,374	4,380	1,354	23.6	273.75
Bayfield	12	5,313	3,564	1,749	32.9	297.00
Douglas	44	16,799	12,900	3,899	23.2	293.18
Iron	6	3,124	2,448	676	21.6	408.00
Total	78	30,970	23,292	7,678	24.8	298.62
Brown	171	56,769	45,552	11,217	19.8	266.28
Door	20	14,067	9,528	4,539	32.3	476.40
Kewaunee	19	7,690	6,646	1,044	13.6	349.80
Manitowoc	84	52,808	46,896	5,912	11.2	558.29
Marinette	36	24,197	17,568	6,629	27.4	487.99
Oconto	23	16,055	11,556	4,489	39.0	462.24
Sheboygan	101	56,805	49,079	7,726	13.6	485.94
Total	456	228,391	186,825	41,556	18.2	409.70
Kenosha	123	65,842	45,023	20,819	31.0	366.05
Milwaukee	1,052	661,798	587,244	74,554	11.3	558.22
Ozaukee	60	32,717	27,084	5,633	17.2	451.40
Racine	182	113,710	94,152	19,558	17.2	517.32
Total	1,417	874,067	453,503	120,564	13.8	320.04
Coastal Zone	1,951	1,133,428	663,620	169,798	15.0	493.91

\* Not adjusted to reflect 5% low month sale attributed to nonresident.

Annual consumption in some counties is low compared to the state total of \$495 per capita. The counties covered in Plate 13 vary from a low of \$273 per capita to \$558 per capita. Further analysis will clarify the peculiarities of consumption, with other factors being reviewed. These other factors include: 1) people from one county purchasing goods and services in another county; 2) residents buying food from stores not

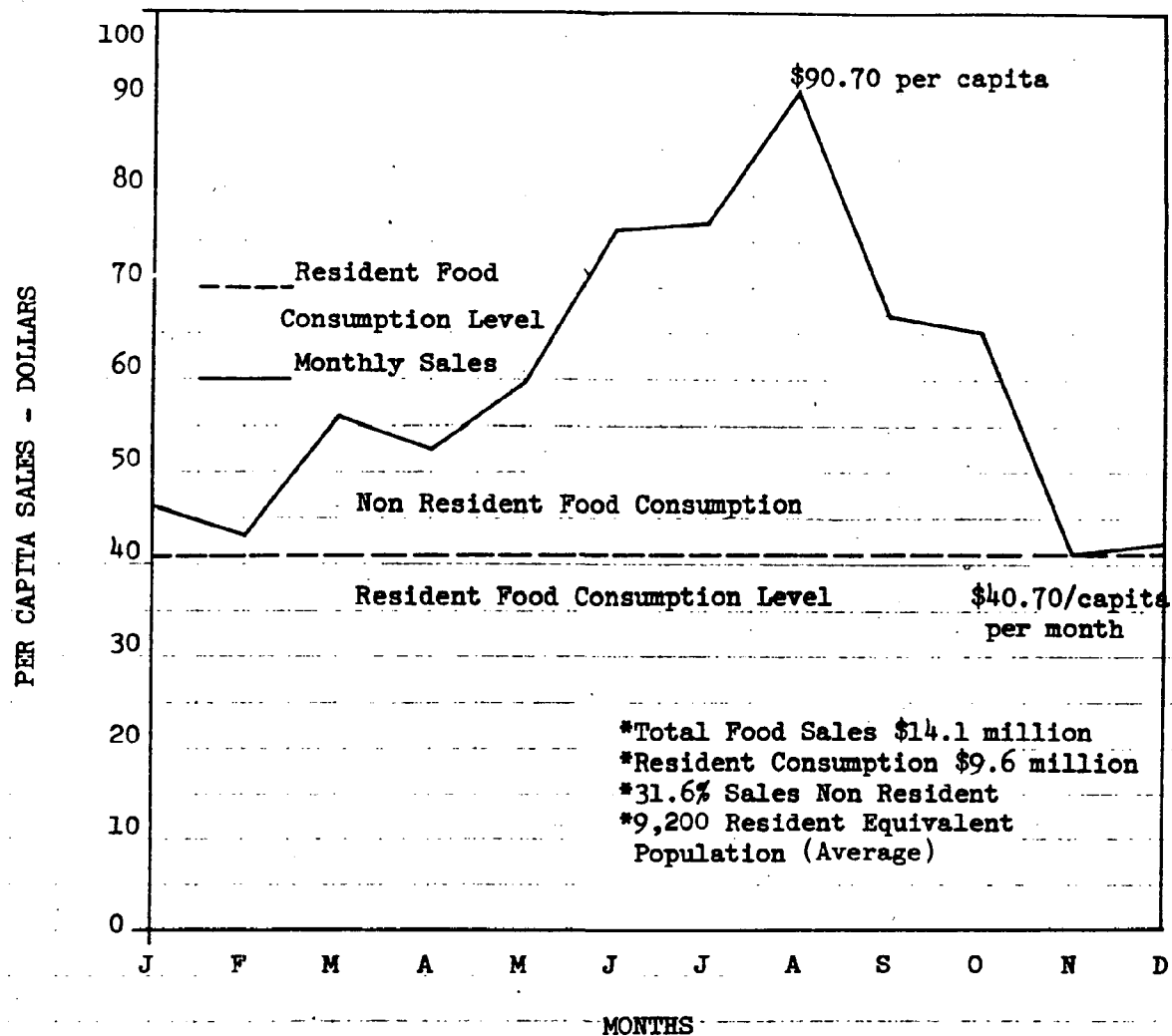
covered under the food store classification; 3) residents having lower budget spending level for food; 4) residents supplementing their food by gardens, canning, or reliance on the natural resources of the area or 5) a shift of sales recorded due to consolidated filers. However, the low month resident consumption system does yield data on food sales attributable to nonresident activity. If the system is realistic, other sales in various businesses should reflect the nonresident activity and validate the system.

#### ESTIMATING NONRESIDENT ACTIVITY COUNTY LEVEL

Plate 14 shows Door County monthly food sales. Door County is being used as an example because it does reflect high fluctuations in sales from the low to high month sales period. Food consumption sales divided by the local resident population for the low month period indicates that \$40.70 is spent on food per capita. Census data on Door County middle income families indicate resident consumption of approximately \$38.00 per capita per month for food. Food consumption per capita in 1974, based on actual monthly sales, ranged from \$40 to \$90 per capita. In August, this represents a 125% increase from the low month to the high month. Food sales attributed to nonresident activity for the year is estimated to be 31.6% of the total or a resident population equivalent of 9,200 persons. Monthly food sales levels can be used in distributing the nonresident population impact. For Door County, August nonresident equivalent population based on food sales is estimated to be 24,200 people. The resident population used in 1974 is 19,700.

PLATE 14

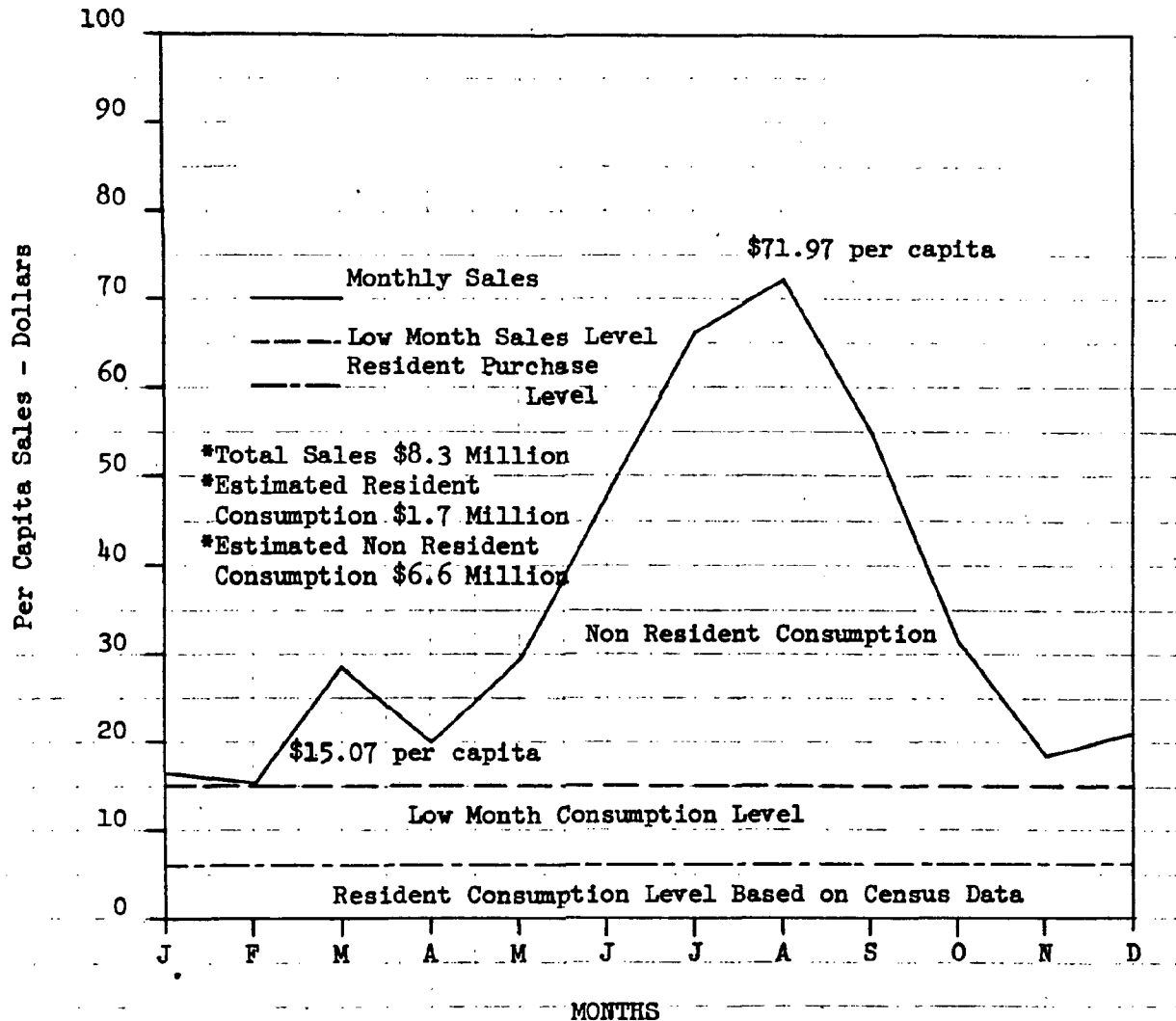
PER CAPITA RESIDENT FOOD CONSUMPTION LEVEL  
COMPARED TO FOOD SALES - DOOR COUNTY - 1974



To further illustrate the effect of nonresident activity on the Door County business community, Plate 15 shows eating and drinking sales volumes by month.

## PLATE 15

EATING AND DRINKING SALES RELATED TO RESIDENT  
POPULATION - DOOR COUNTY - 1974



The low month for food sales per capita is February, with \$15. Sales peak in August at \$71.79 per capita. August total consumption of \$1,417,809 represents a 377% increase compared to \$296,879 sold in February.

Even though the low month consumption figure of \$15 per capita for eating and drinking sales is not realistic, the system would indicate much nonresident activity. Census figures indicate that middle budget

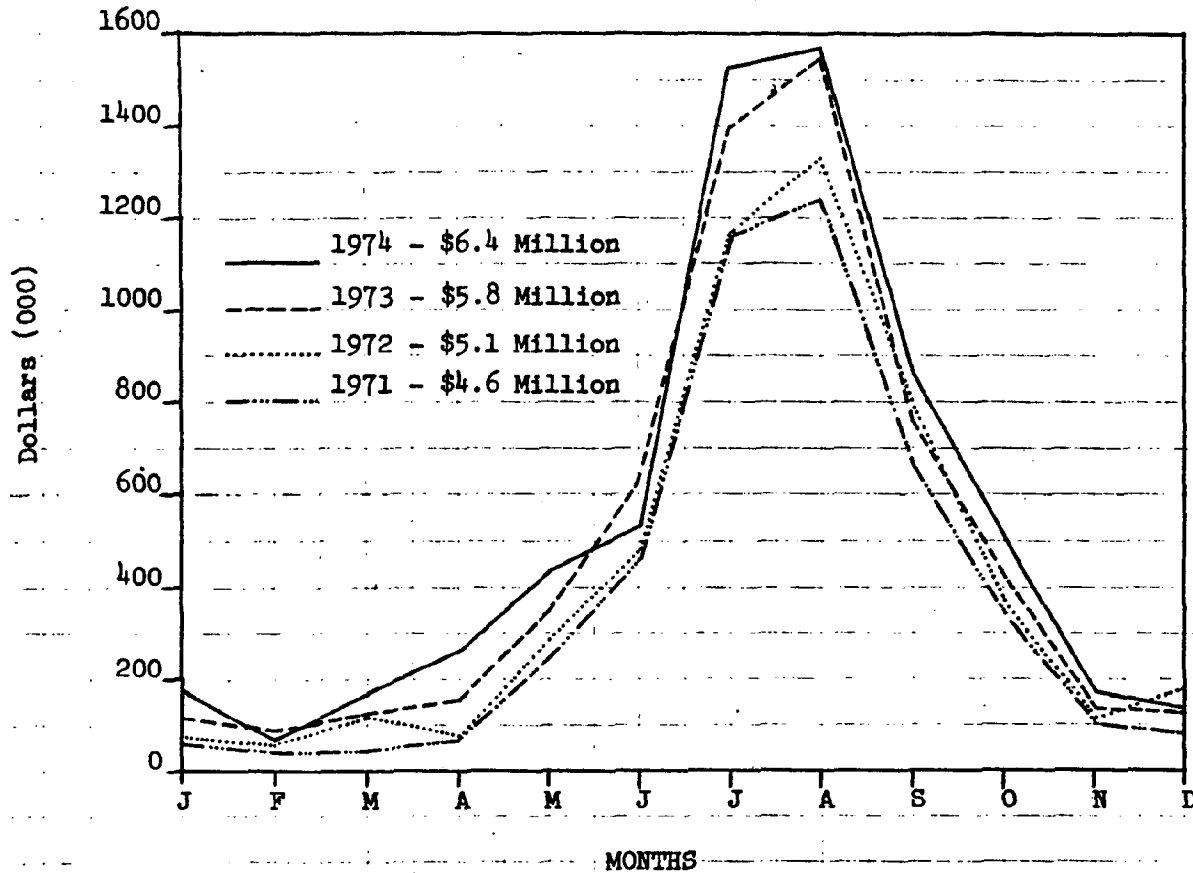
income families spent about 16.7% of the food budget eating away from home. This full amount, if spent in Door County eating and drinking places, would average \$6.50 per capita per month. Using this percentage, the estimated total resident consumption in eating and drinking sales would be \$1,702 million. The nonresident consumption volume would be \$6,625 million for 1974. This information for estimating resident equivalent populations will be analyzed more before projecting the meaning of business volume in numbers of people.

Lodging sales for 1974 in Door County also reflect the seasonality of sales and anticipated nonresident activity during the summer months.

Plate 16 includes lodging sales for a four-year period, 1971, 1972, 1973 and 1974.

PLATE 16

DOOR COUNTY LODGING SALES - 1971-1972-1973 And 1974



The graph illustrates the volume sales in each month. In 1974, the low month sales occurred in February and amounted to \$87,500 of the total annual sales, and in August, the high month, sales amounted to \$1,587,000. Sales in August, the high month, were thus about 18 times as high as in February 1974.

Comparison of sales for each month for a four-year period illustrates the patterns of lodging. Along with the increase in nonresident activity associated with increased lodging, employment and other factors associated with lodging will probably also mirror the fluctuation in sales. Employment changes would react sluggishly to slight changes in business sales. However, comparison of high month and low month of sales will show a correlation between employment and sales.

Plate 17 illustrates the monthly sales of the lodging industry in the state.

The overall trend of lodging sales at the state level does follow the same pattern as the sales in Door County. The low period occurs in February and peaks during August. State lodging sales are not expected to reflect severe seasonality changes as in Door County or other highly recreation-tourism oriented counties. Nevertheless, the increase between February, the low month, and August, the high month, on the state level represents a 155% increase in sales. February sales were \$13,385 million and August sales were \$34,127 million.

## PLATE 17

LODGING SALES BY MONTH IN WISCONSIN - 1974

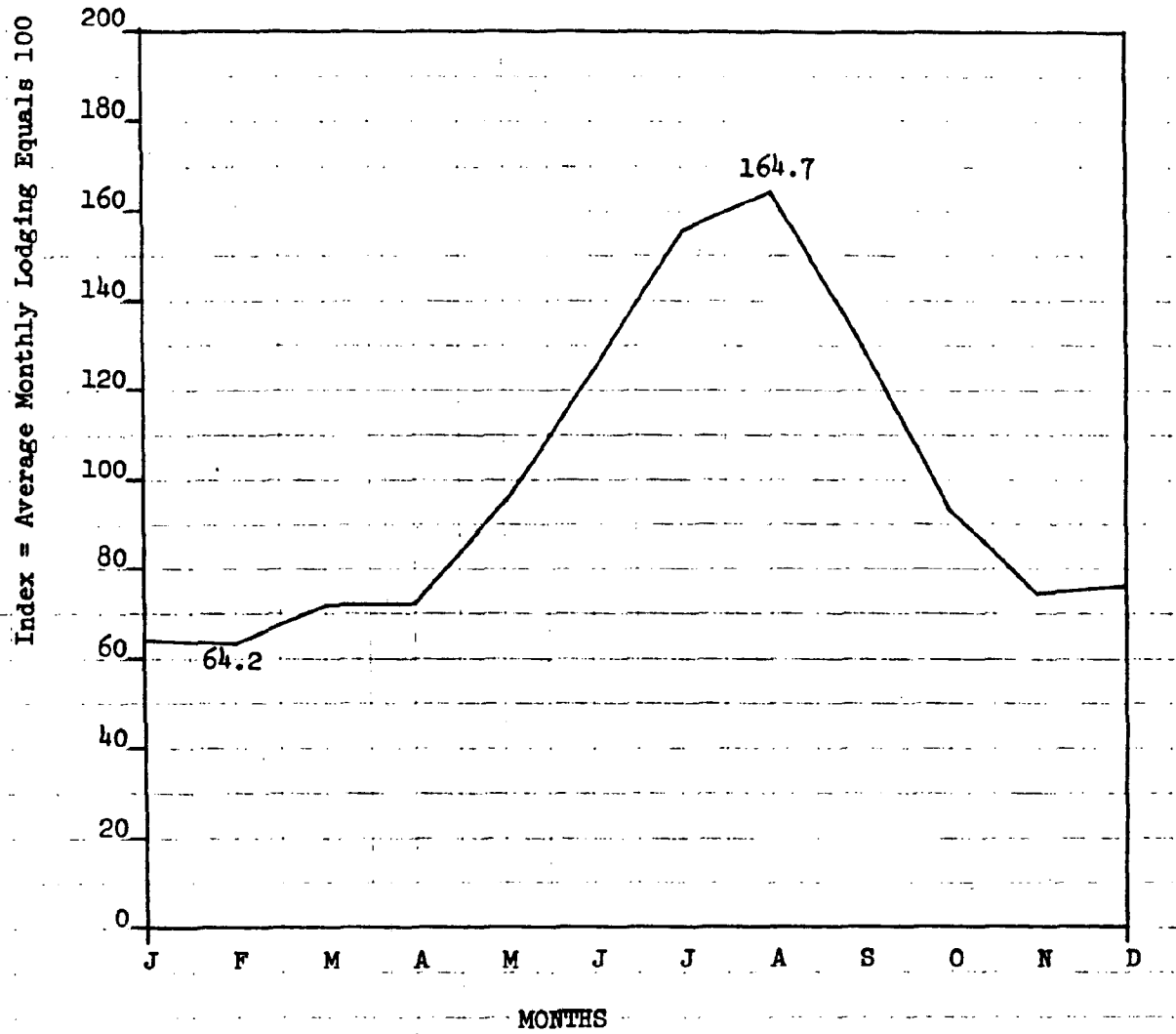
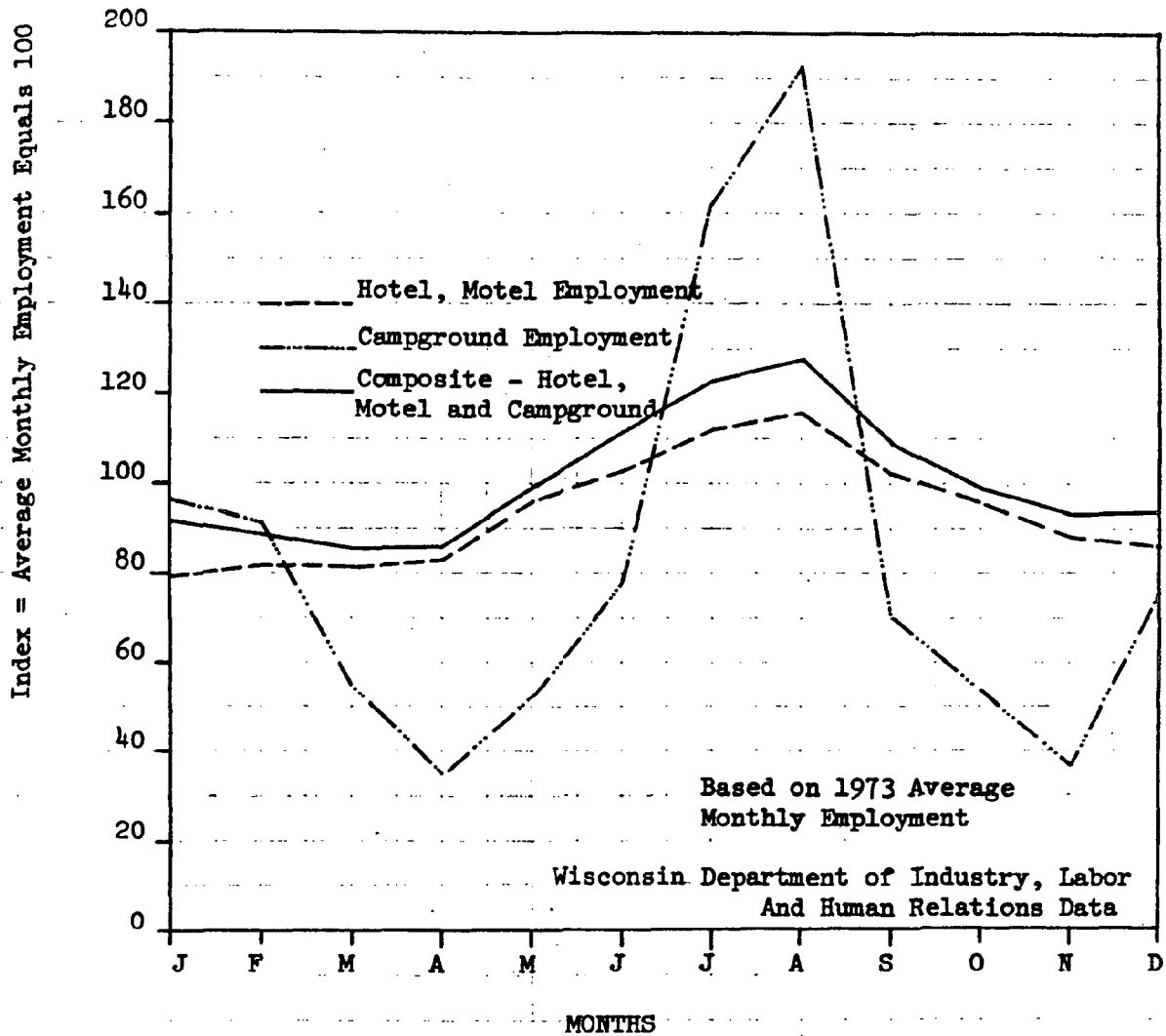


Plate 18 illustrates employment trends in lodging on the state level.

PLATE 18

EMPLOYMENT FLUCTUATION HOTELS, MOTELS  
AND CAMPGROUNDS - WISCONSIN 1973



Included in the graph are employment in campgrounds and hotels, and tourist courts. The data used is based on employment figures in lodging from the Department of Labor, Industry and Human Relations. This data is based on employment in 1,033 hotels and motels and 207 campgrounds in Wisconsin.

The graph illustrates a severe fluctuation of employment in the campground area and a fairly consistent seasonal trend in the hotel-motel area. A composite of the employment level, however, does assume a seasonal employment trend that when compared to monthly state lodging sales provides a reasonable relationship between sales and employment.

By comparing the information in Plate 17 and 18 we can develop a relationship between employment and sales per employee with a seasonality influence. Plate 19 compares the fluctuation in employment and sales in the lodging industry.

#### PLATE 19

##### GROSS BUSINESS SALES IN LODGING COMPARED TO EMPLOYMENT IN LODGING

	Percent of Monthly Employment to Year	1973 Employees Lodging Per Month	1974 Sales Per Month Per Employee	Percent of Sales Per Employee to Total	
J	7.2	13,066	1,024	6.4	J
F	7.3	13,194	1,009	6.3	F
M	7.1	12,899	1,178	7.3	M
A	7.2	12,928	1,249	7.8	A
M	8.2	14,702	1,347	8.4	M
J	9.2	16,605	1,559	9.7	J
J	10.2	18,386	1,747	10.8	J
A	10.7	19,274	1,771	11.0	A
S	9.1	16,480	1,658	10.3	S
O	8.3	15,034	1,301	8.1	O
N	7.7	13,930	1,128	7.0	N
D	7.8	13,978	1,143	7.1	D
	100.0	180,476	16,114	100.2	

Establishing a relationship of employment to sales by industry is needed to carry out the procedure of estimating business sales at the township levels in the coastal zone area. Employment data by industry is available and appears to be the most desirable method to use in allocating sales data to the township level.

Door County was selected as an example area in the report because of all of its townships being considered as part of the coastal area. Plate 20 covers the total business sales being studied by classification and by quarters of the year sales.

PLATE 20

DOOR COUNTY RETAIL AND SERVICE  
SALES BY QUARTERS OF THE YEAR - 1974

I. Primary Recreation Sensitive	10.4	21.0	54.4	14.2
II. Secondary Recreation Sensitive	18.2	25.8	34.2	21.8
III. Recreation Activity	11.8	18.7	48.4	21.1
IV. Other Retail Sales	16.9	26.8	30.6	25.7
	1st Qt	2nd Qt	3rd Qt	4th Qt
	J F M	A M J	J A S	O N D

The county does reflect high nonresident periods with peak usage occurring during the third quarter of the year -- July, August and September. The peak sales period is witnessed in all sales classifications with recreation sensitive being 54.4%, secondary recreation sensitive being 34.1%, recreation activity being 48.4% and other retail sales being 30.6% of total annual sales. This tends to indicate that all of the business

community shares in the total business activity generated by the recreation-tourists. Employment in various business areas also reflect the nonresident activity. If 32.2% of food sales in Door County is attributed to nonresident activity it appears reasonable that employment in the food classification area is affected because of the nonresident. Through close analysis of business data and the relationships to auto movement and other types of data it appears possible to construct a recreation economic impact model for each county in the coastal zone region under the second year effort, that will reflect the importance of seasonal use and the facilities being used.

#### CONCLUSION

This first report on the economic impact of tourism-recreation was not anticipated to identify the amounts of money generated by the tourism-recreation industry in the coastal zone area. The intent was to explore business sales patterns and to develop relationships of nonresident activity and the impact on monthly business sales. With information on nonresident activity it is then possible to begin exploring the use of the sales and other types of data to generate information on resident and nonresident tourism-recreation impact in each county. The economic impact of recreation study using gross business sales data of the magnitude being analyzed is in its infant stage at this time. Five years of business data is organized and will provide adequate opportunity to carefully screen the data and develop meaningful relationships between the many business sales areas that make up the total business community. With the merging of business related data and public facility use, it

appears realistic that sound information can be generated for the coastal zone area. It is anticipated that the second year effort will produce dramatic advancement in the total project as the major emphasis to date has been to generate sound base sales data by county by month. This effort has been completed. With the completion of the base information program concentrated effort will begin in the analysis stage and reviewing other data. This report only scratches the surface of the information available and its use in identifying the recreation economic impact in each county.

Through analysis of nonresident and resident impact, the economic contributions associated with tourism-recreation can be estimated. Information on the importance of recreation-tourism to the business community can be developed and used to provide a sound platform from which to base public policy and programs. Sound judgments can be made that lead to retaining a highly productive recreation-tourism industry and still retain the integrity of the natural resource community.

APPENDICES AND BIBLIOGRAPHY

## APPENDIX A

## DEMAND PROJECTION METHODOLOGY

In a highly simplified framework, necessitated by data limitations, the growth in demand (number of activity occasions) is tied to three factors: population growth, increases in the probability to travel and changes in the probability to participate in a given recreation activity.

Starting with the county level participation figures generated for the 1970 Outdoor Recreation Survey of the Department of Natural Resources as the base year data, the 1980 demand is calculated through an adjustment based on changes in population, travel and participation rates.

Thus, the projected level of demand is a product of base year demand and a growth factor. Symbolically, the relationship can be expressed as,

$$D'_{ij} = D_{ij} \frac{P'_i T'_i R'_{ij}}{P_i T_i R_{ij}} \quad (1)$$

where     D = Demand or activity occasions  
            P = Population  
            T = Probability to travel  
            R = Participation rate  
            i = County, 1.....15  
            j = Activity, 1.....6

and ' designates the projected values of the variables.

Total demand, however, has two components: resident demand and nonresident demand. Or,

$$D_{ij} = D^r_{ij} + D^n_{ij} \quad (2)$$

where  $r$  stands for resident and  $n$  stands for nonresident activity occasions, in a given county. On the basis of equation (1), the projected level of resident demand would then be a product of current resident demand and a growth factor. The projected level of nonresident demand would be a product of current

nonresident demand and a growth factor. Hence, total projected demand can be expressed as,

$$D'_{ij} = D_{ij} \frac{P'_{ri}}{P_{ri}} \frac{T'_{ri}}{T_{ri}} \frac{R'_{rij}}{R_{rij}} + D_{ij} \frac{P'_{ni}}{P_{ni}} \frac{T'_{ni}}{T_{ni}} \frac{R'_{nij}}{R_{nij}} \quad (3)$$

where  $P_{ni}$  denotes the population of the primary demand area and is a weighted average of the population of those states from which the county received its visitors during the summer of 1972.

Two assumptions were necessitated by data limitations in applying the projection equation, (3). First, the regional participation rates (current and projected) were assumed to apply to residents and nonresidents, i.e.,

$$\frac{R'_{rij}}{R_{rij}} = \frac{R'_{nij}}{R_{nij}} \quad (4)$$

And, secondly, the probability to travel to a coastal county was assumed to increase at the same rate for all the coastal counties, by 21.47 percent over the 1970-1980 period.<sup>1/</sup>

The data utilized in the calculation of the growth factors for resident and nonresident demand for six outdoor recreation activities in the 15 coastal counties appear in Tables A-1 and A-2. Table A-1 shows the percent changes in recreation activity participation rates over the 1970-1980 period. Table A-2 shows the projected changes in the population of the states which comprise the primary demand area for each county.

<sup>1/</sup> Somersan, A., et. al., op. cit., p. 44.

Table A-1. Projected Changes in Recreation Activity Participation Rates Among Midwestern Households, 1970 - 1980

Activity	Percent Change* 1970 - 1980
Swimming	-2.80
Boating	61.97
Fishing	37.39
Sightseeing	21.70
Camping	29.34
Hiking	52.62

Source: A. Somersan, et. al., Recreation Demand Survey and Forecasts, Upper Great Lakes Regional Recreation Planning Study, Part 2, Recreation Resources Center, U.W.-Extension, 1974, p. 44.

\* The percent changes for the 1970-1980 period were recomputed from the 1972-80 percent changes in the participation rates.

Table A-2. Projected Changes in the Population of the Primary Demand Area\* of Coastal Counties, 1970 - 1980

County	Percent Change in Population of Primary Demand Area - 1970-1980
Ashland. . . . .	10.83
Bayfield . . . . .	11.56
Brown. . . . .	10.19
Door . . . . .	10.46
Douglas. . . . .	11.38
Iron. . . . .	10.28
Kenosha. . . . .	10.32
Kewaunee . . . . .	10.28
Manitowoc. . . . .	11.66
Marinette. . . . .	12.30
Milwaukee. . . . .	10.84
Oconto. . . . .	11.54
Ozaukee. . . . .	-
Racine . . . . .	10.63
Sheboygan. . . . .	10.28

\* Primary demand area refers to the states from which each county received its visitors during the summer of 1972.

Source: U. S. Dept. of Commerce, Bureau of the Census, Current Population Reports: Population Estimates and Projections, March 1972.

STATES IN PRIMARY DEMAND AREA

Ashland	Wisconsin, Ohio, Indiana, Minnesota
Bayfield	Wisconsin, Minnesota
Brown	Wisconsin, Michigan, Illinois, Iowa, Minnesota
Door	Wisconsin, Illinois, Minnesota
Douglas	Wisconsin, Illinois, Minnesota
Iron	Wisconsin, Illinois
Kenosha	Wisconsin, Illinois, Minnesota, Ohio
Kewaunee	Wisconsin, Illinois
Manitowoc	Wisconsin, Michigan, Illinois
Marinette	Wisconsin, Michigan, Minnesota
Milwaukee	Wisconsin, Ohio, Michigan, Illinois, Iowa, Indiana, Minnesota
Oconto	Wisconsin, Minnesota
Ozaukee	Wisconsin
Racine	Indiana, Illinois
Sheboygan	Wisconsin, Illinois

## APPENDIX B

## DATA SOURCES FOR SUPPLY INVENTORY

This appendix documents specific sources of data used in tabulating public points of access for boating, fishing, swimming and camping. The Wisconsin Department of Natural Resources Outdoor Recreation Facilities Survey, 1970 was used as the data base and cross-checked with more recent sources, where available, except for boating and fishing. Inland lakes with public or commercial access as listed in "Wisconsin Lakes" and specific sources inventorying access facilities on the Great Lakes, all referenced below, were used as base data for boating and fishing.

1. Boating

Department of Natural Resources, Wisconsin Outdoor Recreation Facilities Survey, 1970.

Department of Natural Resources, Fishing Wisconsin's Great Lakes for Trout and Salmon, Pub. 239-72, 1972.

Ronald L. Fassbender, Lake Michigan Access: A Comprehensive Survey of Public Access Facilities on Wisconsin's Lake Michigan Shoreline, Fish Management Bureau Management Report #47, 1971.

Bureau of Fish Management, Department of Natural Resources, County Public Boat Access Sites, Ashland County, 1970, Bayfield County, 1974, Brown County, 1972, Door County, 1972, Douglas County, 1973, Kenosha County, 1970, Kewaunee County, 1972, Racine County, 1970.

2. Fishing

Department of Natural Resources, Wisconsin Lakes, 1974.

Department of Natural Resources, Fishing Wisconsin's Great Lakes for Trout and Salmon, 1972.

Ronald L. Fassbender, Lake Michigan Access: A Comprehensive Survey of Public Access Facilities on Wisconsin's Lake Michigan Shoreline, Fish Management Bureau Management Report #47, 1971.

3. Swimming

Department of Natural Resources, Wisconsin Outdoor Recreation Facilities Survey, 1970.

County Outdoor Recreation Plans, (listed in bibliography).

Department of Natural Resources, 1974 Visitor's Guide to Wisconsin's State Parks, Forests and Other Recreation Lands.

4. Camping

Department of Natural Resources, Wisconsin Outdoor Recreation Facilities Survey, 1970.

Department of Natural Resources, 1974 Visitor's Guide to Wisconsin's State Parks, Forests and Other Recreation Lands.

Department of Natural Resources, Wisconsin Campgrounds, 1973.

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